GEOMETRY – MODEL NO 1

[Q1] Choose the correct answer:

(1) The area of square whose diagonal 8 cm is ..... cm^2

a) 128 b) 64 c) 32 d) 16

(2) The side lengths 4 cm , 5 cm , 3 cm are sides of ..... triangle

a) Isosceles b) Acute c) Right d) Obtuse

(3) If the projection of line segment on a straight line is a point, then the line segment ..... on straight line

a) Parallel b) Perpendicular c) Coincide d) bisects

(4) If the area of a rhombus is 40 cm^2, and length of one of its diagonals is 10 cm, then the other diagonal is ..... cm

a) 80 b) 50 c) 4 d) 8

(5) The area of rectangle whose dimensions 4 cm , 9 cm ..... the area of rhombus whose diagonals 12 cm , 5 cm

a) > b) = c) < d) ≤

(6) The ratio between corresponding sides in two similar polygons is 1 : 3, if the perimeter of the smallest one 15 cm, then the perimeter of the greater polygon is ..... cm

a) 5 b) 45 c) 60 d) 75

[Q2] Complete each of the following:

6) XYZL is a parallelogram, area of Δ XYZ = 18 cm^2, then the area of parallelogram XYZL equals ..... cm^2

7) In Δ ABC, if (AB –AC) (AB + AC) < $(BC)^2$, then $\angle$ C is .....

8) Two parallel straight lines to third are .....

9) Number of axes of symmetry of an equilateral triangle is .....

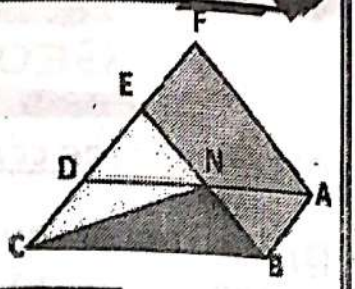
10) If two triangles drawn on same base are equal in area, then its vertices on the straight line .....

[Q3] A) In the opposite figure:

ABCD, ABEF are two parallelograms

Prove that:

Area of Δ NBC = area Parallelogram of ABEF



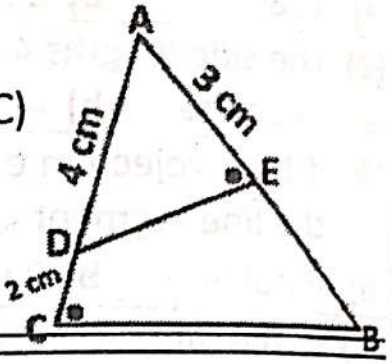
B) In the opposite figure:

Δ ABC, D ∈ $\overline{AC}$. E ∈ $\overline{AB}$, m (∠AED) = m (∠C)

AE = 3 cm, AD = 4 cm, CD = 2 cm

① Prove that: Δ ABC ~ Δ AED

② Find the length of $\overline{EB}$



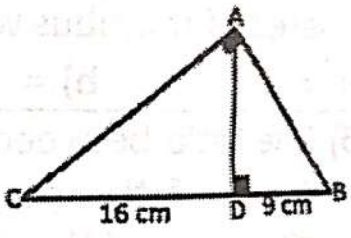
[Q4] A) A trapezium of area 180 cm^2, its height 12 cm, the ratio between length of its bases 3 : 2. Find length of its bases.

B) In the opposite figure:

Δ ABC if right triangle at A,

$\overline{AD} \perp \overline{BC}$, BD = 9 cm,

CD = 16 cm, find length of $\overline{AD}$, $\overline{AB}$, $\overline{AC}$



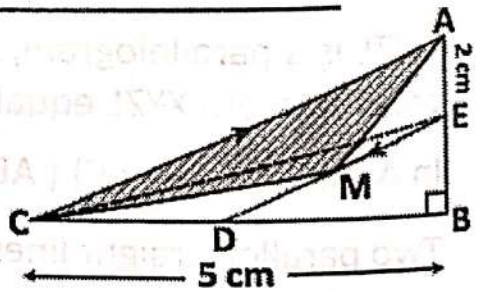
[Q5] A) Δ XYZ, XY = 12 cm , YZ = 20 cm , XZ = 16 cm, determine the type of triangle according to its angles

B) In the opposite figure:

Δ ABC right at B, $\overline{ED} \,//\, \overline{AC}$

AE = 2 cm , BC = 5 cm

Find area of Δ AMB



End of the questions

GEOMETRY – MODEL NO 2

[Q1] Choose the correct answer:

(1) The area of rhombus whose diagonals 10 cm , 12 cm is ..... cm^2

a) 240 **b)** 120 c) 60 **d)** 30

(2) In ΔABC, $(AC)^2 = (AB - BC)(AB + BC)$, then m $(\angle B)$ .....90°

a) > **b)** $\geq$ c) = **d)** <

(3) Two perpendicular straight line on third are .....

a) Parallel **b)** Perpendicular c) Coincide **d)** Intersecting

(4) The length of diagonal of square whose area 50 cm^2 is ..... cm

a) 100 **b)** 20 c) 10 **d)** 5

(5) Length of projection of line segment on straight line parallel to it ..... length of line segment.

a) > **b)** = c) < **d)** $\leq$

(6) If $ABCD \simeq XYZL$, $m(\angle A) = 80^\circ$, $m(\angle Z) = 50^\circ$, $m(\angle D) = 120^\circ$, then $m(\angle B)$ = ...$^\circ$

a) 90 **b)** 110 c) 130 **d)** 250

[Q2] Complete each of the following:

6) If $\Delta ABC \simeq \Delta XYZ$, and AB : XY = 2 : 5, AC = 8 cm, then XY = ... cm

7) Area of square of side length 8 cm = ... cm^2

8) In Δ ABC, D is midpoint of BC, Area of Δ ABD = 20 cm^2, then area of Δ ABC = ... cm^2

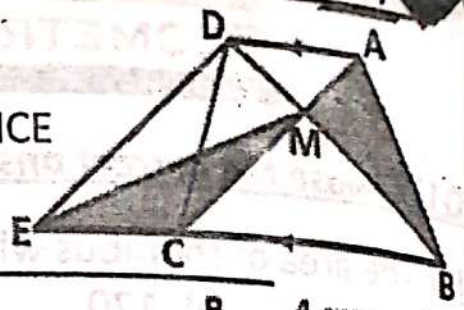
9) If the ratio of enlargement for two similar triangles equal one, then the two triangle are .....

10) The isosceles triangle has ..... Axes of symmetry

[Q3] A) In the opposite figure:

$\overline{AD} \parallel \overline{BC}$, area of Δ ABM = area of Δ MCE

Prove that: $\overline{AC} \parallel \overline{DE}$

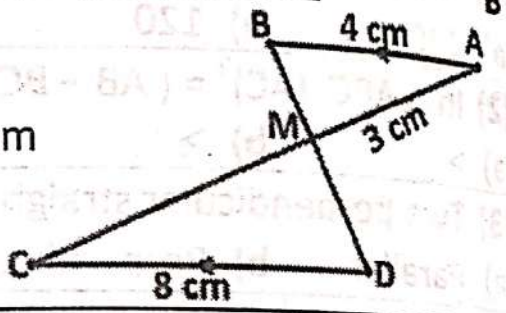


B) In the opposite figure:

$\overline{AB} \parallel \overline{DC}$, $\overline{AC} \cap \overline{BD}$ = {M}, AB = 4 cm

MA = 3 cm, DC = 8 cm

Prove that: Δ MAB ≃ Δ MCD



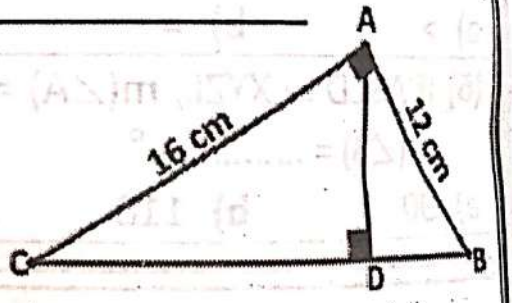
[Q4] A) The area of trapezium is 80 cm^2, its height 8 cm, length of one of its parallel bases is 15 cm, find the length of other base.

B) In the opposite figure:

Δ ABC right at ∠ BAC, $\overline{AD} \perp \overline{BC}$,

AB = 12 cm, AC = 16 cm

Find length of $\overline{BC}$, $\overline{AD}$



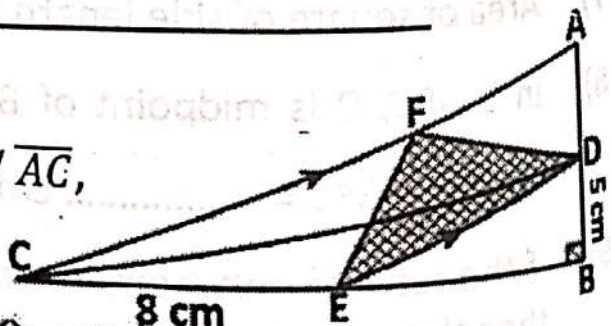
[Q5] A) In Δ LMN, LM = 5 cm, MN = 7 cm , LN = 6 cm, determine the type of triangle according to its angles

B) In the opposite figure:

Δ ABC is right at (∠ B), $\overline{DE} \parallel \overline{AC}$,

DB = 5 cm , EC = 8 cm

↳ Find the area of Δ FDE



End of the questions

GEOMETRY – MODEL NO 3

[Q1] Choose the correct answer:

(1) The two triangle are equal in area and drawn in same base in one side of it, then their vertices on straight line ..... base

a) Perpendicular **b)** Bisects **c)** Parallel **d)** Transversal

(2) The area of triangle whose base 8 cm and its corresponding height 5 cm = ...cm^2

a) 80 **b)** 40 **c)** 20 **d)** 10

(3) The angles of two similar polygons are ..... measure

a) Equal **b)** Different **c)** Proportional **d)** Alternative

(4) .....is a parallelogram with perpendicular diagonal

a) Square **b)** Rectangle **c)** Rhombus **d)** Trapezium

(5) The two base angle of an isosceles triangle are .....

a) Complementary **b)** Supplementary **c)** Adjacent **d)** Congruent

(6) The area of square whose diagonal 8 cm equal ..... Cm^2

a) ..... **b)** ..... **c)** ..... **d)** .....

[Q2] Complete each of the following:

6) The area of rhombus equals half product of .....

7) In Δ XYZ, $(XY)^2 = (YZ)^2 - (XY)^2$, then m ($\angle$ .....) = 90°

8) If A $\in$ straight line L, then projection of A on L is .....

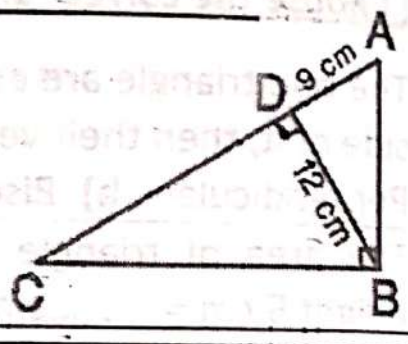
9) Δ ABC $\simeq$ Δ XYZ, and AB = 5 cm , XY = 3 cm
Then perimeter of Δ ABC : perimeter of Δ XYZ = ... : ....

10) The lengths of two parallel bases in trapezium are 10 cm, 6 cm, then the length of its middle base is ..... c m

[Q3] A) Find the height of rhombus whose area 96 cm^2 and lengths of its diagonals 12 cm, 16 cm

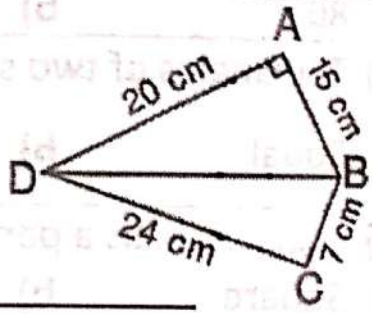
B) In the opposite figure:

Δ ABC right at B, $\overline{BD} \perp \overline{AC}$,
If BD = 12 cm, AD = 9 cm
Find length of $\overline{DC}$



[Q4] **A) In the opposite figure:**

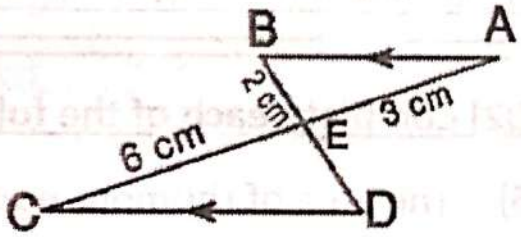
m ($\angle$ A) = 90°, AB = 15 cm , AD = 20 cm
BC = 7 cm, CD = 24 cm
Prove that: m ($\angle$ C) = 90°



B) Find the area of trapezium with two parallel bases 8 cm, 10 cm and its height 6 cm

[Q5] **A) In the opposite figure:**

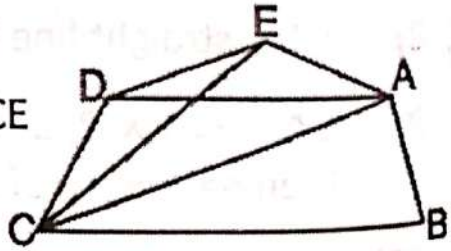
$\overline{AB}$ // $\overline{CD}$, $\overline{AC} \cap \overline{BD}$ = { E }
AE = 3 cm, BE = 2 cm, CE = 6 cm
① Prove that: Δ ABE $\simeq$ Δ CDE
② Find the length of $\overline{ED}$



B) In the opposite figure:

Area of figure ABCD = area of figure ABCE

Prove that: $\overline{AC}$ // $\overline{ED}$



End of the questions

GEOMETRY – MODEL NO 4

[Q1] Choose the correct answer:

(1) Area of square of diagonal 10 cm is ..... Cm^2

a) 100 b) 50 c) 40 d) 20

(2) In Δ ABC, $(AC)^2 = (AB)^2 + (BC)^2 + 9$, then m ($\angle$B) .....$90^\circ$

a) > b) = c) < d) $\leq$

(3) In Δ ABC, $\overline{AD} \perp \overline{BC}$, then projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is .....

a) $\overline{BD}$ b) $\overline{CD}$ c) $\overline{BC}$ d) { D }

(4) The area of rhombus 42 cm^2 and one of its diagonals 12 cm, then the other diagonal is .....

a) 14 b) 7 c) 3.5 d) 2

(5) In a Parallelogram, length of two adjacent sides 7 cm , 9 cm and smaller height 4 cm, then its area ..... cm^2

a) 14 b) 18 c) 28 d) 36

(6) In Δ ABC right at B, m ($\angle$C) = 30°, AB = 5 cm, then AC = ... cm

a) 5 b) $5\sqrt{3}$ c) 10 d) 15

[Q2] Complete each of the following:

6) If the drawing scale of two similar triangles 2 : 3 and measure of one of angles of smaller triangle is 80°, then the measure of corresponding angles in greater triangle equals .....$^\circ$

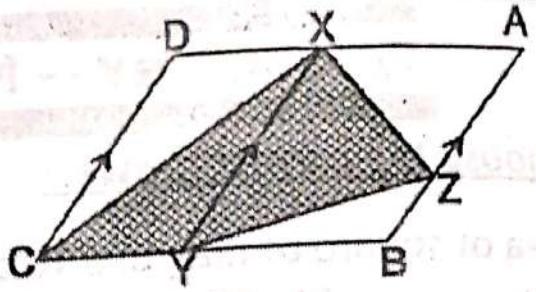
7) The measure of two supplementary angles is .....$^\circ$

8) If Δ ABC $\simeq \Delta$ XYZ and m($\angle$B) = 30°, m($\angle$Z) = 50°, then m ($\angle$X) =..

9) Length of projection of line segment on straight line parallel to it ..... Length of line segment

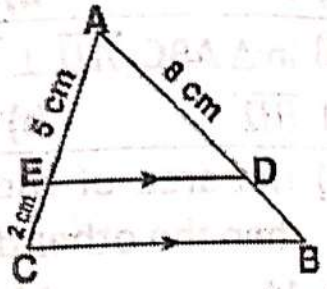
10) If a straight line cut two parallel lines, then each two alternative angles are .....

[Q3] A) In the opposite figure:



ABCD is a Parallelogram,
And $\overline{XY}$ // $\overline{AB}$ // $\overline{DC}$
Prove that:
Area of figure XZYC = $\frac{1}{2}$ area of Parallelogram ABCD

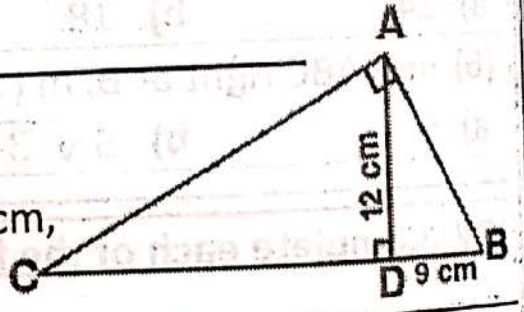
B) In the opposite figure:



$\overline{DE}$ // $\overline{BC}$, AE = 5 cm , EC = 2 cm
AD = 8 cm, prove that: Δ ABC ≃ ADE
Then find the length of $\overline{BD}$

[Q4] A) Find the height of a trapezium whose middle base 12 cm and its surface area 60 cm^2, if one of its bases is twice the other, find length of each one?

B) In the opposite figure:



Δ ABC right at B, $\overline{AD} \perp \overline{BC}$, AD = 12 cm,
BD = 9 cm, Find length of $\overline{DC}$, $\overline{AC}$

[Q5] A) Determine the type of triangle according to its angles if its sides lengths are AB = 10 cm, AC = 6 cm, BC = 8 cm

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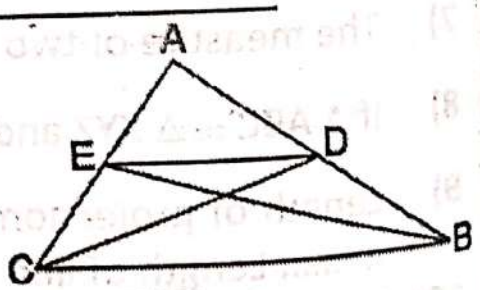
B) In the opposite figure:



Area of Δ ABE = area of Δ ADC
Prove that: $\overline{DE}$ // $\overline{BC}$

End of the questions

GEOMETRY – MODEL NO 5

[Q1] Choose the correct answer:

(1) Area of triangle equal ..... Area of Parallelogram with common base and between two parallel lines one of them carrying this base

a) Same b) Half c) Double d) Quarter

(2) The height of triangle whose area 36 cm^2 and its base 9 cm is..

a) 2 cm b) 4 cm c) 8 cm d) 12 cm

(3) Length of projection of line segment on straight line parallel to it ..... Length of line segment

a) > b) = c) < d) ≤

(4) Area of square whose diagonal 6 cm is ..... cm^2

a) 12 b) 18 c) 36 d) 72

(5) Sum of interior angles of triangle is .....°

a) 180 b) 360 c) 540 d) 720

(6) An isosceles triangle has .....axes of symmetry

a) Zero b) One c) Two d) Three

[Q2] Complete each of the following:

6) The median of triangle divide it into two triangles .....

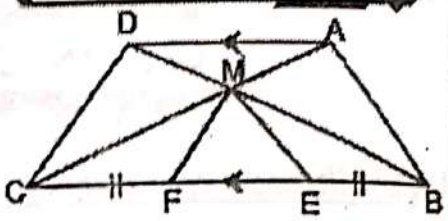
7) Δ ABC, AB = 8 cm, BC = 6cm, AC = 10 cm, type of ∠A is.....

8) The base of Parallelogram whose area 42 cm^2 and its height 6cm is .....

9) Two triangles are similar if their angles .....

10) If the ratio of similarity between two triangles equal one, then two triangles are .....

[Q3] A) In the opposite figure:

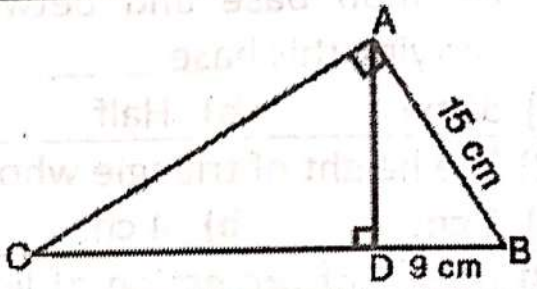


$\overline{AD}$ // $\overline{BC}$, $\overline{BE} = \overline{FC}$

Prove that:

Area of figure ABEM = area of figure DCFM

B) In the opposite figure:

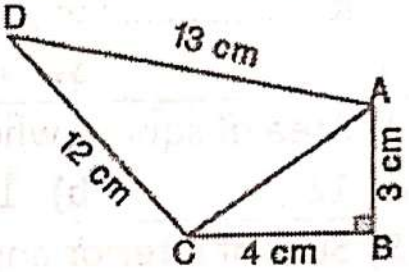


Δ ABC is right at A, $\overline{AD} \perp \overline{BC}$

If AB = 15 cm, BD = 9 cm

Find length of BC

[Q4] A) In the opposite figure:



m (∠B) = 90°, AB = 3 cm, BC = 4 cm

DA = 13 cm, DC = 12 cm

Prove that: m (∠ ACD) = 90°

B) Find height of a trapezium whose area 40 cm^2, and lengths of its two parallel bases are 7 cm , 9 cm

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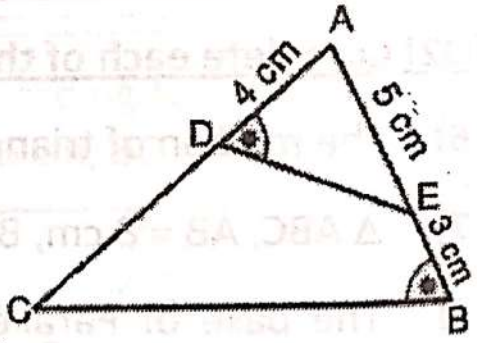
[Q5] A) In the opposite figure:



AE = 5 cm, AD = 4 cm, BE = 3 cm

And m (∠B) = m (∠ADE)

① Prove that: Δ ABC ≃ Δ ADE

② Find length of $\overline{DC}$

B) Find the area of rhombus whose diagonals 8 cm, 6 cm and find length of its height.

End of the questions

GEOMETRY – MODEL No. 6

[Q1] Choose the correct answer:

(1) If area of rhombus 40 cm^2, one of its diagonals 10 cm, then the length of other diagonal ..... cm

a) 5 **b)** 6 **c)** 8 **d)** 10

(2) If the area of square 50 cm^2, then length of its diagonal ..... cm

a) 5 **b)** 10 **c)** 25 **d)** 100

(3) In Δ ABC, if $(AB)^2 - (BC)^2 = (AC)^2$, then m ($\angle$ B) .....

a) Acute **b)** Right **c)** Obtuse **d)** Straight

(4) If area of triangle 30 cm^2, its height 5 cm, then its base ..... Cm

a) 6 **b)** 12 **c)** 18 **d)** 5

(5) Projection of point (5 , 3) on X – axis is .....

a) (5 , 3) **b)** (−5 , 3) **c)** (5 , 0) **d)** (0 , 3)

(6) If the drawing scale of two similar triangles 1 : 2 and measure of one of angles of smaller triangle is 50°, then the measure of corresponding angles in greater triangle equals .....°

a) 25 **b)** 50 **c)** 100 **d)** 150

[Q2] Complete each of the following:

6) Area of Parallelogram 30 cm^2, its base 6 cm, its height .....

7) In Δ ABC right at A, $\overline{AD} \perp \overline{BC}$, then AB × ..... = BC × .....

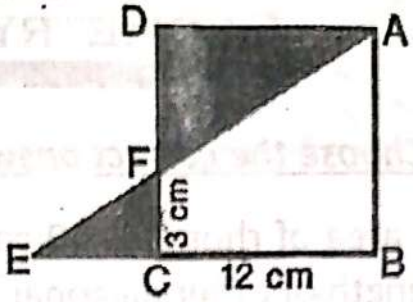
8) Area of Parallelogram equal ..... Area of triangle with common base and between two parallel lines one of them carrying this base

9) Two triangles area similar if their corresponding sides are .....

10) The median of triangle divide it into two triangles .....

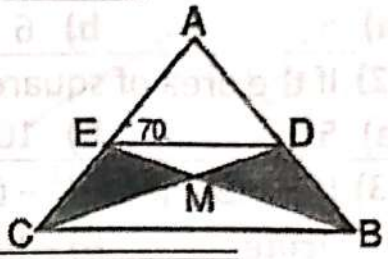
[Q3] A) In the opposite figure:

ABCD is square of side 12 cm,
CF = 3 cm, $\overline{AE} \cap \overline{CD}$ = {F}
① Prove that: Δ ADF ≃ ECF
② Find length of $\overline{EC}$



B) In the opposite figure:

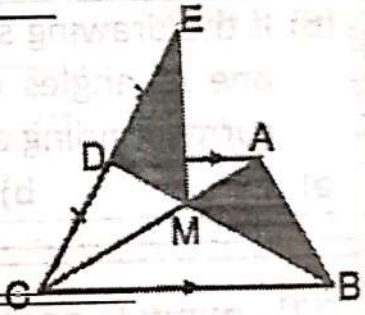
If area of Δ DBM = area of Δ CME
And m (∠ AED) = 70°
Find m (∠ ACB)



[Q4] A) The ratio between two parallel bases in a trapezium 2 : 3, and length of its middle base 30 cm, find:
① Length of its bases
② Area of trapezium if its height 24 cm

B) In the opposite figure:

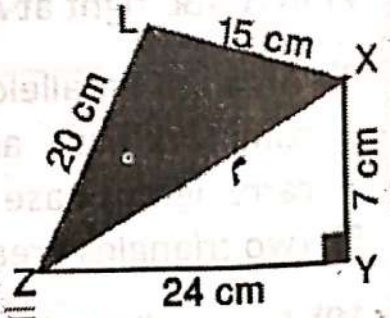
$\overline{AD}$ // $\overline{BC}$, D midpoint of $\overline{BC}$
Prove that:
Area of Δ ABM = area of Δ DME



[Q5] A) Determine the type of triangle according to its angles if its sides lengths are AB = 8 cm, AC = 6 cm, BC = 7 cm

B) In the opposite figure:

M (∠ XYZ) = 90°, $\overline{LM} \perp \overline{XZ}$, XL = 15 cm
ZL = 20 cm, XY = 7 cm, YZ = 24 cm
① Prove that: m (∠ XLZ) = 90°
② Find length of $\overline{LM}$, $\overline{XM}$



End of the questions

GEOMETRY – MODEL No 7

[Q1] Choose the correct answer:

(1) The diagonal of square whose area 50 cm^2 is ..... Cm

a) 10 b) 20 c) 30 d) 40

(2) If the ratio between two similar triangles 1 : 3 and length of sides of greater triangle is 12 cm, then the length of corresponding side in smaller triangle equals ..... cm

a) 4 b) 6 c) 12 d) 24

(3) In Δ ABC, $(AB)^2 - (BC)^2 > (AC)^2$, then $\angle$ B .....

a) Acute b) Right c) Obtuse d) Straight

(4) Length of two parallel bases in trapezium 10 cm , 6 cm, its height 5 cm, then its area = ... cm^2

a) 10 b) 30 c) 40 d) 80

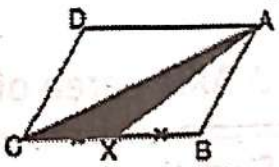
(5) If area of rhombus 48 cm^2, length of one of its diagonals 12 cm, then length of other diagonal is ..... Cm

a) 4 b) 8 c) 10 d) 16

(6) In the opposite figure:

BX = XC

Area of Δ AXC = ... area of ABCD



a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{8}$ d) 2

[Q2] Complete each of the following:

6) Length of projection of line segment on straight line parallel to it ..... Length of line segment

7) Two similar polygons two third are .....

8) Two triangles on same base and its vertices on straight line parallel to base are .....

9) Projection of point (5 , 3) on y axis is point .....

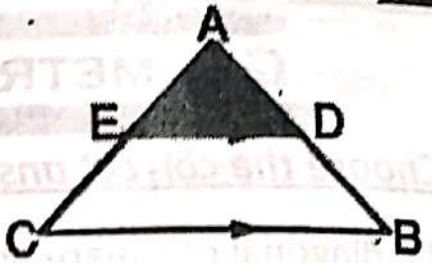
10) Two diagonals of an isosceles trapezium are .....

[Q3] A) In the opposite figure:

$\overline{DE} // \overline{BC}$, DE = 6 cm, AD : AB = 1 : 3

① Prove that: Δ ADE $\simeq$ Δ ABC

② Find length of $\overline{BC}$

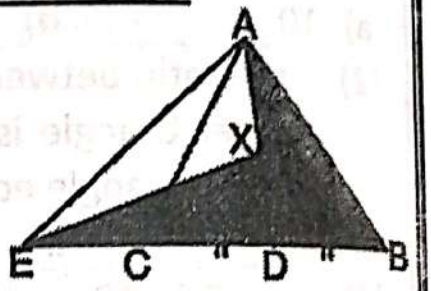


B) In the opposite figure:

Area of Δ ADB = area of Δ XDE

And DB = DC,

Prove that: XC // AE

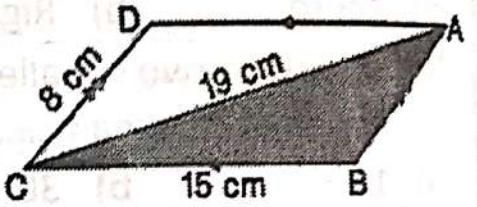


[Q4] A) In the opposite figure:

ABCD is Parallelogram,

BC = 15 cm, DC = 8 cm, AC = 19 cm

Prove that: $\angle$ ABC is obtuse angle

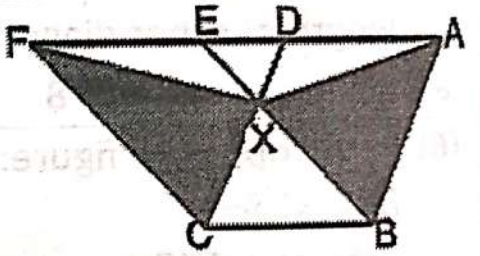


B) In the opposite figure:

ABCD is Parallelogram

Prove that:

Area of Δ AXB = area of Δ XCF



[Q5] A) Find the area of rhombus whose perimeter 60 cm and measure of one of its angles is 60°

B) In the opposite figure:

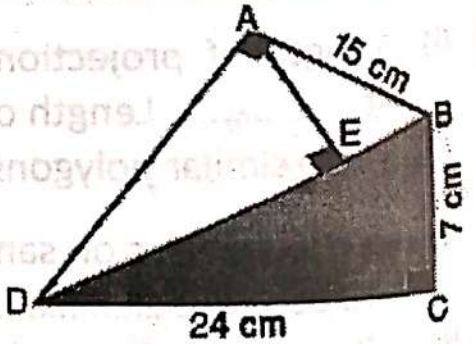
ABCD is quadrilateral, $\overline{AE} \perp \overline{BD}$

m ($\angle$ BCD) = m ($\angle$BAD) = 90°, **Find:**

① Length of $\overline{AD}$, $\overline{BD}$

② Length of projection of $\overline{AB}$ on $\overline{BD}$

③ Length of projection of $\overline{AD}$ on $\overline{AE}$



End of the questions

GEOMETRY – MODEL NO 8

[Q1] Choose the correct answer:

(1) Perimeter of rhombus of diagonals 12 cm , 16 cm is .....cm
a) 10 b) 40 c) 96 d) 192

(2) Length of projection of line segment on straight line parallel to it ..... length of original line segment.
a) > b) = c) < d) ≤

(3) Area of rectangle whose sides 8 cm , 4 cm = ...cm^2
a) 16 b) 24 c) 32 d) 64

(4) Sum of interior angles of quadrilateral = ...°
a) 180 b) 360 c) 540 d) 720

(5) Measure of exterior angle of an equilateral triangle = ...°
a) 60 b) 120 c) 180 d) 360

(6) Area of square whose perimeter 12 cm is .....cm^2
a) 72 b) 144 c) 3 d) 9

[Q2] Complete each of the following:

6) The triangles with equal bases and lay on same straight line and have common vertex are .....

7) In Δ ABC, AB = 8 cm, BC = 5 cm, AC = 4 cm, then Δ ABC is .....

8) If the length of two adjacent sides in Parallelogram are 5 cm , 9 cm, and its smaller height is 7 cm, then its area .....cm^2

9) Two triangles are similar if their corresponding sides are.....

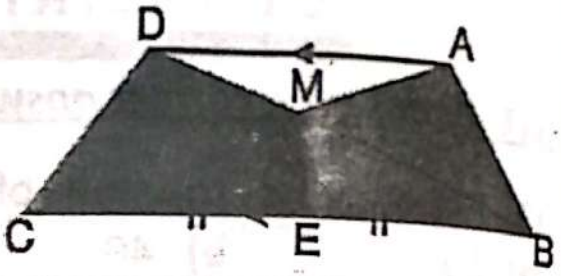
10) The area of a square formed on one of the right sides of a right–angled triangle is equal to the area of the rectangle whose dimensions project of this side on hypotenuse and the length of .....

[Q3] **A) In the opposite figure:**

$\overline{AD} \parallel \overline{BC}$, E is midpoint of $\overline{BC}$

Prove that:

Area of ABEM = area of DCEM

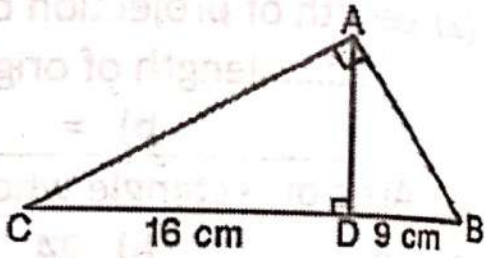


B) In the opposite figure:

Δ ABC right at A, $\overline{AD} \perp \overline{BC}$

BD = 9 cm , CD = 16 cm

Find length of $\overline{AB}$

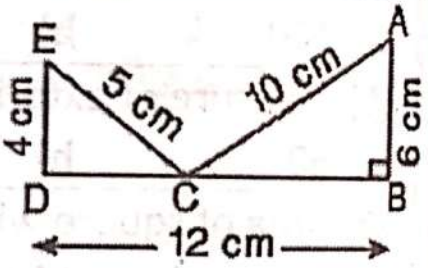


[Q4] **A) In the opposite figure:**

m ($\angle$ B) = 90°, AB = 6 cm, AC = 10 cm

ED = 4 cm, EC = 5 cm, BC = 12 cm

Prove that: m ($\angle$ D) = 90°



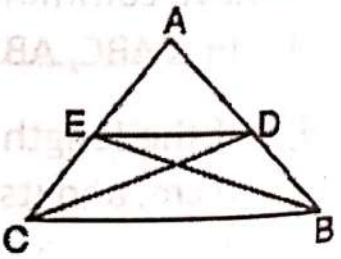
B) Two similar triangles, perimeter of the first 54 cm, lengths of sides of other triangle 5 , 6 , 7 cm, find the sides lengths of first triangle

[Q5] **A) In the opposite figure:**

Area of Δ ABE = area of Δ ACD

Prove that:

$\overline{DE} \parallel \overline{BC}$



B) Find the middle base of a trapezium whose area 110 cm^2 and its height 10 cm.

End of the questions

GEOMETRY – MODEL No 9

[Q1] Choose the correct answer:

(1) Area of square whose side 12 cm is .....cm^2

a) 36 b) 48 c) 72 d) 144

(2) In Δ ABC, if $\overline{AD} \perp \overline{BC}$, then projection of point A on $\overleftrightarrow{BC}$ is .....

a) { D } b) $\overline{BD}$ c) $\overline{CD}$ d) $\overline{BC}$

(3) Measure of exterior angle o equilateral triangle is .....°

a) 30 b) 60 c) 120 d) 360

(4) The triangle of sides 5 cm , 8 cm , 12 cm is .....triangle

a) Right b) Acute c) Obtuse d) Isosceles

(5) In Δ ABC: $(AB)^2 = (BC)^2 + (AC)^2 + 5$, then m (∠C) .....90°

a) > b) = c) < d) ≤

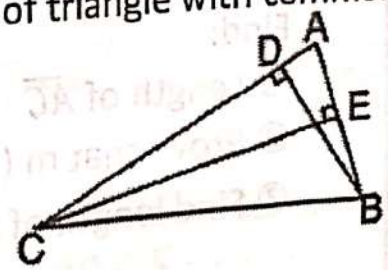
(6) The area of rhombus 100 cm^2, its diagonal 10 cm, the other diagonal is ..... cm

a) 2 b) 5 c) 10 d) 20

[Q2] Complete each of the following:

6) If the ratio between two similar triangles 2 : 3 and measure of one angle smaller triangle is 20°, then the measure of corresponding angle in greater triangle equals .....°

7) Area of Parallelogram equals ..... area of triangle with common base and lies between two parallel lines



8) In the opposite figure:
AB = 5 cm , AC = 10 cm
EC = 8 cm, then BD = ... cm

9) Sum of measures of two complementary angles is .....

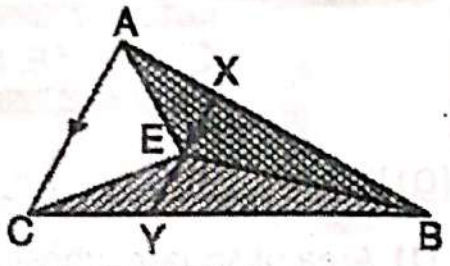
10) Two triangles are similar if their corresponding sides are .....

[Q3] A) In the opposite figure:

$\overline{AC}$ // $\overline{XY}$, F midpoint of $\overline{XY}$

Prove that:

Area of Δ ABF = area of Δ CBF



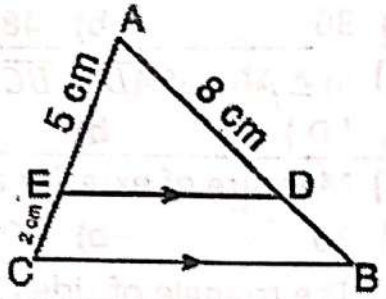
B) In the opposite figure:

DE // BC , AE = 5 cm

EC = 2 cm, AD = 8 cm

① Prove that: Δ ABC ≃ ADE

② Find length of $\overline{BD}$



[Q4] A) Area of trapezium 180 cm^2, its height 12 cm, ratio between its two parallel bases 3 : 2, find length of each one

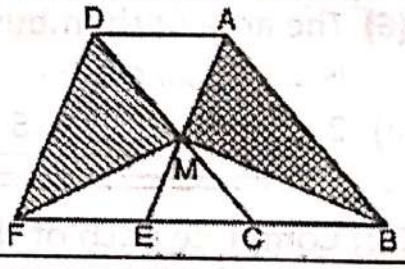
---

B) In the opposite figure:

ABCD, AEFD are two Parallelograms

Prove that:

Area of Δ ABM = area of Δ DFM



[Q5] In the opposite figure:

ABCD is quadrilateral, m (∠ B) = 90°

$\overline{DE} \perp \overline{AC}$, AB = 7 cm, BC = 24 cm

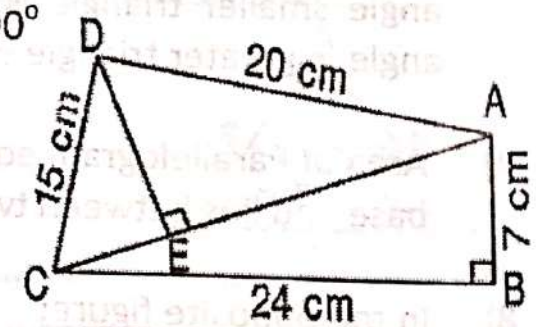
CD = 15 cm, DA = 20 cm

Find:

① Length of $\overline{AC}$

② Prove that m (∠ ADC) = 90°

③ Find length of projection of $\overline{DC}$ on $\overrightarrow{AC}$



End of the questions

GEOMETRY – MODEL NO 10

[Q1] Complete each of the following:

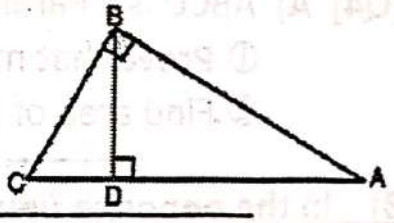
6) The area of rhombus 48 cm^2, its diagonal 12 cm, the other diagonal is ..... cm

7) In Δ ABC, AB = 5 cm, BC = 7 cm, CA = 11 cm, then m (∠B) = ...

8) Two similar triangles, sides of first one 4 , 6 , 8 cm, perimeter of the other 72 cm, then the sides of the other ....., ..., ... cm

9) The median of triangle divide it into two triangles .....

10) In the opposite figure:
Δ ABC, m (∠ABC) =90°, $\overline{BD} \perp \overline{AC}$
① Then projection of $\overline{AB}$ on $\overline{AC}$ is .....
② $(BC)^2$ = ... × .....



[Q2] Choose the correct answer:

(1) Area of triangle 24 cm^2, its height 8 cm, then its base .....cm
a) 2 b) 3 c) 6 d) 16

(2) ABCD is a Parallelogram, E ∈ D, area of Δ AEB = 20 cm^2, then area of Parallelogram ABCD = ...cm^2
a) 10 b) 20 c) 30 d) 40

(3) A trapezium length of its parallel bases 5 cm , 7 cm, its area 42 cm, then its height = ... cm
a) 5 b) 6 c) 7 d) 12

(4) In Δ ABC, AB = 7 cm , BC = 5 cm , AC = 4 cm, then ∠C .....
a) Acute b) Obtuse c) Right d) Straight

(5) If length of rectangle 12 cm , its diagonal 13 cm, the its area .....
a) 144 cm^2 b) 169 cm^2 c) 156 cm^2 d) 60 cm^2

[Q3] A) In the opposite figure:

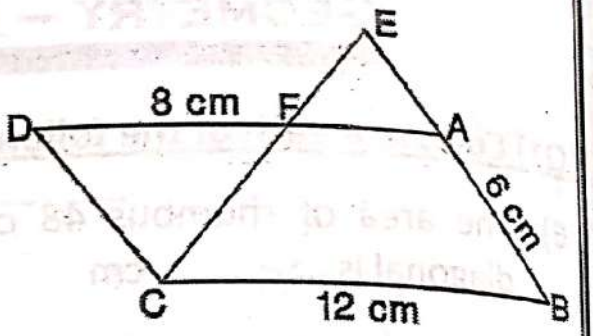
ABCD is Parallelogram, E $\in \overrightarrow{BA}$

$\overline{CE} \cap \overline{AD}$ = { F }, BC = 12 cm,

AB = 6 cm, FD = 8 cm, FC = 7 cm

① Prove that: Δ AEF $\simeq \Delta$ DCF

② Find length of $\overline{EB}$, $\overline{EF}$

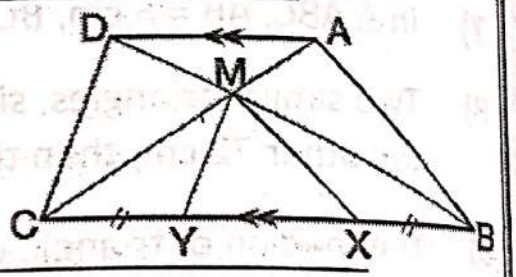


B) In the opposite figure:

$\overline{AD}$ // $\overline{BC}$, $\overline{AC} \cap \overline{BD}$ = { M },

X,Y $\in \overline{BC}$, BX = CY, prove that:

Area of ABXM = area of DCYM



[Q4] A) ABCD is a Parallelogram, AB = 8 cm, AC = 20 cm, BD = 12 cm,

① Prove that m ($\angle$ ABD) = 90°

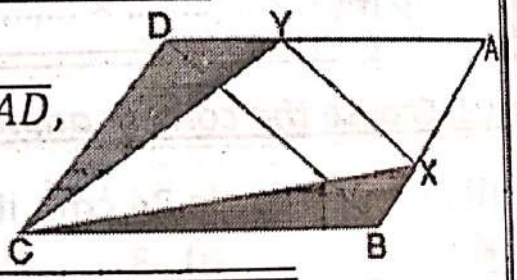
② Find area of Parallelogram ABCD

B) In the opposite figure:

ABCD is Parallelogram, X $\in \overline{AB}$, Y $\in \overline{AD}$,

Area of Δ BCX = area of Δ CYD

Prove that: $\overline{XY}$ // $\overline{BD}$



[Q5] In the opposite figure:

ABCD is quadrilateral,

m ($\angle$ BCD) = m($\angle$BAD) = 90°

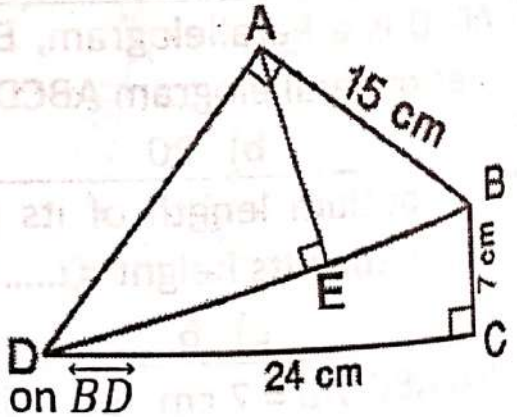
$\overline{AE} \perp \overline{BD}$, BC = 7 cm, CD = 24 cm

AB = 15 cm, Find:

① Length of $\overline{BD}$, $\overline{AD}$

② Find length of projection of $\overline{AB}$ on $\overleftrightarrow{BD}$

③ Find length of projection of $\overline{AD}$ on $\overleftrightarrow{AE}$



End of the questions

Model 1 Geometry

PrepP 2 T2
2020-2021

Q1 (choose)

1) $A = \frac{1}{2}(d)^2 = \frac{1}{2}(8)^2 = 32\ cm^2$

2) $5^2 = 25$ $\quad$ $(4)^2 + (3)^2 = 25$

$\therefore (5)^2 = (4)^2 + (3)^2$

* Right Traingle

3) Perpendicular

4) A) $_{Rhombus} = \frac{1}{2} d_1 d_2$

$40 = \frac{1}{2}(10)(d_2)$

$d_2 = 8\ cm$

5) A) $_{Rectangle} = 4 \times 9 = 36\ cm^2$

A) $_{Rhombus} = \frac{1}{2}(12) \times 5 = 30\ cm^2$

$A_{Rectangle} > A_{Rhombus}$ [a]

6) $\frac{\text{small length}}{\text{large } \sim} = \frac{\text{small Perimeter}}{\text{large } \sim}$

$\frac{1}{3} = \frac{15}{X} \Rightarrow X = 3 \times 15$

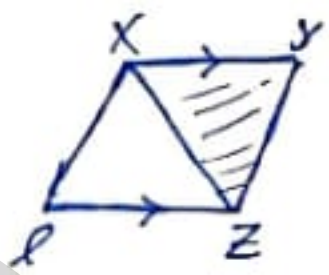
$= 45\ cm$

Q2 Complete

1) $A(\Delta XYZ) = 18\ cm^2$

$A(\square XYZL) = 18 \times 2$

$= 36\ cm^2$



2) $(AB)^2 - (AC)^2 < (BC)^2$

$(AB)^2 < (BC)^2 + (AC)^2$

Then $\angle C$ is Acute Angle

3) Parallel

4) 3

5) Parallel to this Base

Q3 (3) (A)

[a] ΔNBC & $\square ABCD$

$\overline{BC}$ (Common Base) & $C\overline{B} \parallel D\overline{A}$

& $N \in DA$ $\quad \therefore A(\Delta NBC) = \frac{1}{2} A(\square ABCD)$ (1)

$\because$ in $\square(ABCD)$, $\square ABEF$

$(\overline{BA})$ Common Base

C, D, E, F on same straight line

$\therefore A(\square ABCD) = A(\square ABEF)$ (2)

From (1) & (2) $\quad \therefore A(\Delta NBC) = A(\square ABEF)$

(B) $\because \Delta\Delta (ABC), (AED)$

$\angle A$ (Common angle)

$m(AED) = m(ACB)$

$m(ADE) = m(ABC)$

$\therefore \Delta ABC \sim \Delta ADE$

$\therefore \frac{AB}{AD} = \frac{BC}{DE} = \frac{AC}{AE} \Rightarrow \frac{AB}{4} = \frac{6}{3}$

$AB = \frac{24}{3} = 8\ cm$ & $\overline{EB} = 8 - 3 = 5\ cm$

Q4 (a) Assume

First Base $= 3X$ & second Base $= 2X$

$\because A = \frac{1}{2}(B_1 + B_2) * H \Rightarrow 180 = \frac{1}{2}(5X) * 12$

$\therefore 180 = 30X \Rightarrow X = 6$

$\therefore B_1 = 6 \times 3 = 18\ cm$, $B_2 = 2 \times 6 = 12\ cm$

(B) $\because \angle A = 90°$ & $\overline{AD} \perp \overline{BC}$

$\therefore (AD)^2 = DB \times DC \Rightarrow AD = \sqrt{9 \times 16} = 12\ cm$

$AB = \sqrt{DB \times CB} = \sqrt{9 \times 25} = 15\ cm$

$AC = \sqrt{CD \times CB} = \sqrt{16 \times 25} = 20\ cm$

Q5 [a] $(YZ)^2 = (20)^2 = 400$

$(XY)^2 + (XZ)^2 = (12)^2 + (16)^2 = 400$

$\therefore (YZ)^2 = (XY)^2 + (XZ)^2$

$\therefore \Delta XYZ$ is right Traingle in $\angle X$

(B) $\because \overline{ED} \parallel \overline{AC}$ & $\overline{AC}$ (Common Base)

$\therefore A(\Delta ACM) = A(\Delta ACE)$

$\therefore A(ACE) = \frac{1}{2} * 2 * 5 = 5\ cm^2$

$\therefore A(ACM) = 5\ cm^2$

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(1)

Model ② Geometry

Q1

[1] $A_{\text{Rhombus}} = \frac{1}{2} d_1 d_2 = \frac{1}{2}(6)(12) = 60 \text{ cm}^2$

[2] $(AC)^2 = (AB)^2 - (BC)^2$

$\therefore (AB)^2 = (AK)^2 + (BC)^2$

$\therefore m(< B) > 90$

[3] Parallel

[4] $D = \sqrt{2(\text{Area of } \square)} = \sqrt{2 \times 50}$

$= 10 \text{ cm}$

[5] $=$

[6] $m(\hat{A}) = m(\hat{X}) = 80°$
$m(\hat{B}) = m(\hat{y}) = \cdots$
$m(\hat{z}) = m(\hat{z}) = 50°$
$m(\hat{D}) = m(\hat{L}) = 120$

$\Rightarrow m(\hat{B}) = m(\hat{y})$
$= 360 - 80 - 50 - 120$
$= 110°$

Q2

[1] $\frac{AB}{XY} = \frac{BC}{YZ} = \frac{AC}{XZ} \Rightarrow \frac{2}{5} = \frac{8}{XZ}$

$XZ = \frac{5 \times 8}{2} = 20 \text{ cm}$

[2] $A_{\square} = (8)^2 = 64 \text{ cm}^2$

[3] $A \triangle ABC = 2 (\text{Area of } ABD)$

$= 2(20)$

$= 40 \text{ cm}^2$

[4] Congurent

[5] 1

Q3 A)

$\overline{DA} \parallel \overline{BC}$ & $\overline{AD}$ Common Base

$\therefore$ Area of $\triangle ADB$ = A of $\triangle ADC$

By deleting A of ABD from each other

$\therefore$ A of $\triangle AMB$ = A of $\triangle DMC$ (1)

$\therefore$ A of $\triangle ABM$ = A of $\triangle MCE$ (2)

$\therefore$ A of $\triangle CMD$ = A of $\triangle CME$

& $\overline{MC}$ Common Base

$\therefore \overline{MC} \parallel \overline{DE}$

$\overline{AB} \parallel \overline{DC}$ & $\overline{AC}$ & $\overline{BD}$ transversal

$\therefore m(\hat{A}) = m(\hat{C})$ alternate

$m(\hat{C}) = m(\hat{D})$ ~

and $m(B\hat{M}A) = m(C\hat{M}D)$ V.O.A

$\therefore \triangle MAB \sim \triangle MCD$

$\frac{MA}{MC} = \frac{AB}{CD} = \frac{MB}{MD} \Rightarrow \frac{3}{MC} = \frac{4}{8}$

$\therefore MC = \frac{3 \times 8}{4} = 6 \text{ cm}$

Q4 A) $A_{\text{Trapezium}} = \frac{1}{2}(B_1 + B_2) \times H$

$80 = \frac{1}{2}(15 + B_2) \times 8$

$\therefore \frac{80}{4} = 15 + B_2 \Rightarrow B_2 = 5 \text{ cm}$

B) $\because m(\hat{A}) = 90°$ & $\overline{AD} \perp \overline{BC}$

$\therefore BC = \sqrt{(12)^2 + (16)^2} = 20 \text{ cm}$

$AD = \frac{AB \times AC}{CB} = \frac{12 \times 16}{20} = 9.6 \text{ cm}$

Q5 [a] $(MN)^2 = (7)^2 = 49$

$(LM)^2 + (LN)^2 = (5)^2 + (6)^2 = 61$

$\therefore (MN)^2 < (LM)^2 + (LN)^2$

$\therefore \triangle LMN$ Acute-Angle-triangle

B) $\because \overline{DE} \parallel \overline{AC}$ & $(\overline{ED})$ Common Base

$\therefore$ A of $\triangle (FDE)$ = A of $\triangle EDC$

$\therefore$ A of $\triangle EDC = \frac{1}{2} \times 8 \times 5 = 20 \text{ cm}^2$

$\therefore$ A of $\triangle FDE = 20 \text{ cm}^2$

#

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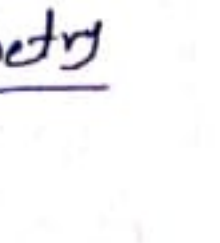
model [3] Geometry

① [1] Parallel
[2] A of $\Delta = \frac{1}{2}(8)(5) = 20\ cm^2$
③ equal
④ Rhombus
⑤ Congruent
⑥ $A_{\square} = \frac{1}{2}d^2 = \frac{1}{2}(8)^2 = 32\ cm^2$

---

② (1) it's Digonal

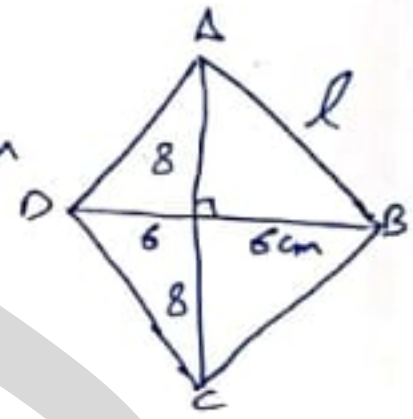
A) $_{Rhomuby} = \frac{1}{2}d_1 d_2$



(2) $(yz)^2 = (xy) + (xz)^2 \Rightarrow m(\hat{x}) = 9^0$
(3) FA} oR Point A
(4) $\frac{P\Delta ABC}{P\Delta xyz} = \frac{AB}{xy} = \frac{5}{3}$
(5) middle Base $= \frac{B_1+B_2}{2} = \frac{10+6}{2} = 8$ cm

---

③ A) A) $_{Rhomby} = \frac{1}{2}d_1 d_2$
$= L \times H$
$\therefore 96 = l * H$
$l = \sqrt{(8)^2+(6)^2} = 10cm$
$\therefore 96 = 10 \times H$
$H = 9.6$ cm



B) $\because m(\hat{B}) = 90$ S $\overline{BA} \perp \overline{Ac}$
$\therefore (BD)^2 = DA \times Dc$
$(12)^2 = 9 \times Dc$
$Dc = \frac{144}{9} = 16$ cm

---

④ A) $\because \Delta ABD$
$BD = \sqrt{(20)^2+(15)^2} = 25$ cm

$\because \Delta DBC$
$(BD)^2 = (25)^2 = 625$
$(DC)^2 + (CB)^2 = (24)^2 + (7)^2 = 625$
$\therefore (BD)^2 = (DC)^2 + (CB)^2$
$\therefore m(\hat{C}) = 90^0$ #

B) A) $= \frac{1}{2}(B_1+B_2) * H$
Trapezium
$= \frac{1}{2}(8+10) \times 6 = 54\ cm^2$

---

⑤ A) $\because \overline{BA} \parallel \overline{CD}$
S $\overline{AC}$ S $\overline{BD}$ transversal
$\therefore m(\hat{A}) = m(\hat{C})$, $m(\hat{B}) = m(\hat{D})$ $\Rightarrow$ alternate
$m(B\hat{E}A) = m(C\hat{E}D)$ V.O.A (vertically opposite angle)
$\therefore \Delta ABE \sim \Delta CDE$
$\frac{AB}{CD} = \frac{BE}{DE} = \frac{AE}{CE} \Rightarrow \frac{2}{DE} = \frac{3}{6}$
$\overline{DE} = \frac{12}{3} = 4$ cm

B) $\because A$ of ABCD = A of ABCE
with Deleting A of Δ ACB
with Both Side
$\therefore$ A of ΔCAD = A of ΔCAE
ℓ $\overline{CA}$ (Common Base)
ℓ Two Traingles on Same side
from it's Base
$\therefore \overline{AC} \parallel \overline{ED}$ #

eng. AbdelAziz

model (4) Geometry

Q1

1) $A_D = \frac{1}{2}d^2 = \frac{1}{2}(10)^2 = 50\ cm^2$

2) $> 90°$

3) FD3

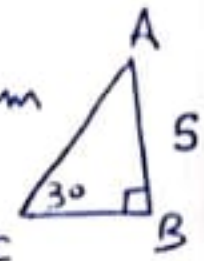
4) $A)_{Rhombus} = \frac{1}{2}d_1 d_2 \Rightarrow 42 = \frac{1}{2}(12)d_2$

$d_2 = 7\ cm$

5) A) $\square$ = Smaller Height * Big length

$= 4 \times 9 = 36\ cm^2$

6) $\overline{AC} = 2\,\overline{AB} = 2(5) = 10\ cm$



Q2

1] 80° (Angles equal in measure)

2] lengths Proportion in Length

3) 180°

4) $m(\hat{X}) = 180 - (30+50)$

$= 100°$

5) equal (=)

6) equal in measure

OR

5) "Congruent"

Q3

A) $\overline{XY}$ Common Base $\S\ \overline{XY} \parallel \overline{AB}$

$\therefore A$ of $\Delta XYZ = \frac{1}{2} A\square XYBA$ (1)

$\because \overline{XY}$ Common Base, $\overline{XY} \parallel \overline{CD}$

$\therefore A$ of $XYC = \frac{1}{2} A\square XYCD$ (2)

with adding (sum) (1) & (2)

$\therefore A$ of $XZYC = \frac{1}{2} A$ of $ABCD$

B) $\overline{BC} \parallel \overline{ED}$ S ($\overline{AC}$ & $\overline{AB}$) are Transversal

$\therefore m(A\hat{D}E) = m(\hat{B})$ } with Corresponding Axiom

$m(A\hat{E}D) = m(\hat{C})$

$m(\hat{A})$ common Angle

$\therefore \Delta ABC \sim \Delta ADE$

$\frac{AB}{AD} = \frac{AC}{AE} \Rightarrow \frac{AB}{8} = \frac{7}{5}$

$AB = \frac{56}{5} = 11.2\ cm$

Q4 (a) A) $A_{\square} = \frac{1}{2}(B_1 + B_2) * H$

$= \text{middle Base} * H$

$60 = (12) * H \Rightarrow H = \frac{60}{12} = 5\ cm$

$B_1 = 2B_2$

$\Rightarrow 60 = (\frac{1}{2})(B_1 + B_2) * H$

$60 = \frac{1}{2}(2B_2 + B_2) * 5$

$\therefore 24 = 3B_2 \Rightarrow B_2 = 8\ cm$

$B_1 = 16\ cm$

Q5 A)

$(AB)^2 = (10)^2 = 100$

$(AC)^2 + (BC)^2 = (6)^2 + (8)^2 = 100$

$\therefore \Delta ABC$ is Right Angle triangle

In ($\hat{C}$)

$\boxed{(AB)^2 = (AC)^2 + (BC)^2}$

B) $\because A$ of $\Delta ABE = A$ of ΔADC

with deleting A of ΔADE

$\therefore A$ of $\Delta EDB = A$ of ΔEDC

S $\overline{ED}$ (Common Base) &

Two Triangles in same side

from it's Base

$\therefore \overline{DE} \parallel \overline{BC}$ //

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model (5) Geometry

Q1 ① Half

② $H = \frac{2(A)}{B} = \frac{2(36)}{9} = 8$ cm

③ =

④ $A = \frac{1}{2}d^2 = \frac{36}{2} = 18$ cm^2

⑤ 180°

⑥ one

Q2 [1] equal in Area

[2] $(AC)^2 = 100$, $(AB)^2 + (BC)^2 = 100$

$\therefore m(\hat{B}) = 90°$ $\Rightarrow m(\hat{A})$ is Acute

③ $B = \frac{A}{H} = \frac{42}{6} = 7$ cm

④ equal in measure (OR) Congruent

⑤ Congruent

Q3 $\because \overline{AD} \parallel \overline{BC}$, $(\overline{AD})$ Common Base

$\therefore$ A of ΔADB = A of ΔADC

By Deleting A) of ΔADM From each side

$\therefore$ A of ΔAMB = A of ΔDMC ①

$\because \overline{EB} = \overline{CF}$, $(M$ Common Angle)

$\therefore$ A of ΔMBE = A of ΔMCF ②

By adding ① , ②

$\therefore$ A of ABEM = A of DCFM

③ $m(\hat{A}) = 90°$, $\overline{AD} \perp \overline{CB}$

$\therefore (AB)^2 = (DB) * BC \Rightarrow BC = \frac{(15)^2}{9}$

$\therefore BC = 25$ cm

Q4 A) $\because \Delta ABC$, $m(\hat{B}) = 90°$

$\therefore AC = \sqrt{16+9} = 5$ cm

$\therefore (AD)^2 = (13)^2 = 169$

$(AC)^2 + (DC)^2 = 25 + 144 = 169$

$\therefore (AD)^2 = (AC)^2 + (CD)^2$

$\therefore m(A\hat{C}D) = 90°$ «Right Angle»

B) $A = \frac{1}{2}(B_1 + B_2) * H$

$H = \frac{2A}{B_1 + B_2} = \frac{2 \times 40}{7+9} = 5$ cm

Q5 A) In $\Delta\Delta ABC, ADE$

$\because m(A\hat{D}M) = m(\hat{B})$

$m(\hat{A})$ common angle

$\therefore m(A\hat{E}D) = m(\hat{C})$

$\therefore \Delta ABC \sim \Delta ADE$

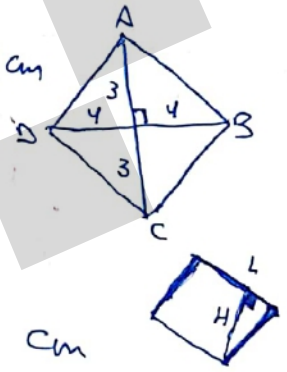
$\frac{AB}{AD} = \frac{AC}{AE} \Rightarrow \frac{8}{4} = \frac{AC}{5} \Rightarrow AC = 10$ cm

$\therefore DC = 10 - 4 = 6$ cm #

B) $A)_{\diamond} = \frac{1}{2} d_1 d_2$

$= \frac{1}{2}(8)(6) = 24$ cm^2

length $= \overline{AB} = \sqrt{9+16} = 5$ cm



$A = \text{length} * H$

$24 = 5 * H$

$H = \frac{24}{5} = 4.8$ cm

model (6) Geometry

Q1 ① $d_2 = \frac{2A}{d_1} = \frac{2\times40}{10} = 8$ cm

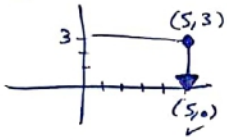
② $d = \sqrt{2A} = \sqrt{100} = 10$

③ $(AB)^2 = (AC)^2 + (BC)^2$

$\therefore m(\hat{B})$ is Acute

④ $B = \frac{2A}{H} = \frac{2(30)}{5} = 12$ cm

⑤ $(5,0)$



⑥ 50°

Q2 ① $H = \frac{30}{6} = 5$ cm

② $AB \times \underline{AC} = BC \times \underline{AD}$

③ Twice

④ Proportion in length

⑤ equal in Area

Q3 (A) $DF = 12-3 = 9$ cm

$\because \Delta DAF \Rightarrow m(\hat{D}) = 90$

$\therefore FA = \sqrt{(12)^2+(9)^2} = 15$ cm

$\because ABCD$ is square $\Rightarrow \overline{AD} \parallel \overline{BC}$

$\because \overline{AE}$ is transversal

$\therefore m(\hat{D}) = m(f\hat{C}E) = 90^\circ$ Alternate vertically opposite Angles (V.O.A)

$\therefore m(D\hat{F}A) = m(E\hat{f}C)$

$\therefore \Delta ADF \simeq \Delta ECf$

$\frac{AD}{EC} = \frac{DF}{Cf} \Rightarrow \frac{12}{EC} = \frac{9}{3}$

$EC = \frac{12\times3}{9} = 4$ cm

(B) $\because A$ of $\Delta DBM = A$ of ΔCME

By adding A of ΔMDE for each other

$\therefore A$ of $\Delta EDB = A$ of EDC

$\ell(\overline{ED})$ common Base ℓ in same side from the Base

$\therefore \overline{ED} \parallel \overline{CB}$ & $(\overline{AC})$ is Transversal

$\therefore m(A\hat{E}D) = m(A\hat{C}B) = 70^\circ$ By Corresponding

Q4 (A) Assume first Base $= 2X$

Second Base $= 3X$

middle Base $= \frac{2X+3X}{2} = \frac{30}{1}$

$5X = 60 \Rightarrow X = 12$

$\therefore$ First Base $= 2X = (2\times12) = 24$ cm

Second " $= 3X = (3\times12) = 36$ cm

$A = M.B \times H = 30 * 24 = 720$ cm^2

(B) In ΔD & DEM & DMO

$\overline{DM}$ is a medium (D is a midpoint of $\overline{BC}$)

$\therefore A$ of $\Delta DME = A$ of ΔDMO (1)

$\because \overline{DA} \parallel \overline{OB}$ & $(\overline{DA})$ Common Base

$\therefore A$ of $\Delta DAB = A$ of ΔDAO

By deleting A of DAM from each other

$\therefore A$ of $MAB = A$ of ΔMDO (2)

From (1) & (2) $\Rightarrow \therefore A$ of $\Delta ABM = A$ of DME

Q5 (A) $(AB)^2 = 64$ & $(AC)^2 + (BC)^2 = 85$

$\therefore (AB)^2 < (AC)^2 + (BC)^2 \Rightarrow \therefore \Delta ABC$ is Acute triangle - Angles

(B) $\because \Delta XYZ \Rightarrow m(\hat{y}) = 90^\circ$

$\therefore XZ = \sqrt{(7)^2+(24)^2} = 25$ cm

$(XZ)^2 = 625$ & $(LX)^2 + (LZ)^2 = (15)^2 + (20)^2 = 625$

$\therefore m(\hat{L}) = 90^\circ \Rightarrow LM = \frac{15\times20}{25} = 12$ cm

$\overline{XM} = \frac{(15)^2}{25} = 9$ cm

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model (7) Gometry

Q1 ① $d=\sqrt{2}A=\sqrt{100}=10$

② $1:3$
$X:12 \Rightarrow X=\frac{12}{3}=4$ cm

③ $(AB)^2 > (AC)^2+(BC)^2$
$\Leftrightarrow$ B is Acute

④ $A=\frac{1}{2}(B_1+B_2)*H$
$=\frac{1}{2}(10+6)*5=40$ cm^2

⑤ $A=\frac{1}{2}d_1d_2=\frac{1}{2}(12)d_2=48$
$d_2=8$ cm

⑥ $\frac{1}{4}$

Q2 ① equal

② Similar

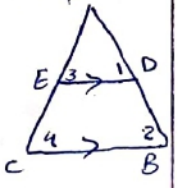
③ equal in Area

④ (0, 3)

⑤ equal in length / Congruent

$\because \overline{DE} \parallel \overline{BC}$ & $\overline{AB}$ & $\overline{AC}$ transversals

Q3 Ⓐ $m(\hat{1})=m(\hat{2})$
$m(\hat{3})=m(\hat{4})$
$m(\hat{A})$ common Angle



$\therefore \Delta ADE \sim \Delta ABC$

$\frac{AD}{AB}=\frac{DE}{BC} \Rightarrow \frac{1}{3}=\frac{6}{BC}$

$BC=18$ cm

Ⓑ $\because A$ of $\Delta ADB = A$ of ΔXDE ①

$\because AD$ is a median in ΔABC

$\therefore A$ of $\Delta ABD = A$ of ΔADC ②

From ① & ②

$\therefore A$ of $\Delta XDE = A$ of ΔADC

By deleting A of ΔXDC from each other

$\therefore A$ of $\Delta CXA = A$ of ΔCXE

$\because CX$ common Base and two Traingles on the same Side from the Base $\therefore \overline{XC} \parallel \overline{AE}$

Q4 $\because ABCD$ Parallelogram

$\therefore AB=CD=8$ cm $\Rightarrow \because \Delta ABC$

$(AC)^2=361$ $\S$ $(AB)^2+(BC)^2=289$

$\therefore (AC)^2 > (AB)^2+(BC)^2$

$\therefore \Delta ABC$ is obtuse in $m(A\hat{B}C)$

Ⓑ $\because ADCB$ Parallelogram

$\ell(\overline{AB})$ common Base $\S X \in \overline{DC}$

$\therefore A$ of $\Delta AXB = \frac{1}{2} A$ of $\square ADCB$ ①

$\because EBCf$ is Parallelogram

$\overline{Cf}$ common Base $\ell X \in \overline{EB}$

$\therefore A$ of $\Delta FXC = \frac{1}{2} A$ of $\square EBCf$ ②

$\because A$ of $ADCB = A$ of $EBCf$ ③

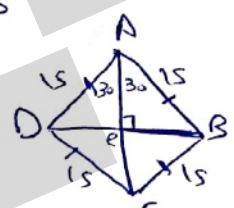
have [$\overline{BC}$ common Base $\ell \overline{CB} \parallel \overline{AF}$]

$\therefore$ From ① & ② & ③

$\therefore A$ of $AFX = A$ of AXB

Q5 Ⓐ $P_{\square}=60$ cm

$\ell=\frac{60}{4}=15$ cm



$\because$ in ΔABD [$AB=AD$] ℓ $AE \perp BD$ $\because m(e\hat{A}B)=m(e\hat{A}D)=\frac{60}{2}=30°$

$\because eB=\frac{15}{2}=7.5 \Rightarrow BD=2*7.5=15$ cm

$eA=\sqrt{(15)^2-(7.5)^2}=13$ cm $\Rightarrow AC=26$ cm

$\therefore A=\frac{1}{2}(15)(26)=195$ cm^2

Ⓑ $\because \Delta BCD \rightarrow m(\hat{C})=90° \Rightarrow DB=\sqrt{(7)^2+(24)^2}$

$DB=25$ cm $\Rightarrow \because m(\hat{A})=90° \ell A\overline{E} \perp \overline{DB}$

$AD=\sqrt{(25)^2-(15)^2}=20$ cm

* length of Projection of $\overline{AB}$ on $\overline{BD}=\overline{EB}$

$EB=\frac{(15)^2}{25}=9$ cm

* length of Projection of $\overline{AD}$ on $\overline{AE}=AE$

$AE=\frac{15*20}{25}=12$ cm #

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Model (8) Geometry

Q1 ① $\ell = \sqrt{(8)^2+(6)^2} = 10$ cm

$P = 4\ell = 40$ cm

② =

③ $A = 8 \times 4 = 32$ cm^2

④ 360°

⑤ 120°

⑥ $P = 12 \Rightarrow S = 3$ cm

$A = S^2 = 9$ cm^2

Q2 ① ② equal in Area

② $(AB)^2 = 64$ & $(BC)^2 + (AC)^2 = 41$

Then ΔABC is obtus Triangle

Angle in $(\hat{C})$

③ $A = 9 \times 7 = 63$ cm^2

④ Proportion in length

⑤ hypotenuse.

Q3 $\Rightarrow \overline{ME}$ is a median in $\Delta MBC \Rightarrow$

$\therefore A$ of $\Delta MEB = A$ of ΔMEC ①

$\because \overline{AD} \parallel \overline{BC}$ & $(\overline{DA})$ common Base

$\therefore A$ of $\Delta DAB = A$ of ΔADC

By deleting A of ΔADM from each other

Then $\Rightarrow \therefore A$ of $\Delta AMB = A$ of ΔDMC ②

By adding ① & ②

$\therefore A$ of ABEM $= A$ of DCEM

B $\because m(\hat{A}) = 90$ & $\overline{AD} \perp \overline{CB}$

$\therefore AD = \sqrt{9 \times 16} = 12$ cm

$AB = \sqrt{BD \times BC} = \sqrt{9 \times 25}$

$= 15$ cm

Q4 $\because \Delta CAB \rightarrow m(\hat{B}) = 90$

$\therefore CB = \sqrt{(10)^2 - (6)^2} = 8$ cm

$\therefore DC = 12 - 8 = 4$ cm

$\therefore (EC)^2 = 25$ & $(DE)^2 + (DC)^2 = 25$

$\therefore (EC)^2 = (DE)^2 + (DC)^2$

$\therefore \Delta EDC$ is Right - Traingle Angle in $(\hat{D}) \Rightarrow m(\hat{D}) = 90^\circ$

B

				Perimeter
first Δ	AB	BC	AC	54
other Δ	5	6	7	18

$\therefore AB = \frac{5 \times 54}{18} = 15$ cm

$BC = \frac{6 \times 54}{18} = 18$ cm

$AC = \frac{7 \times 54}{18} = 21$ cm

Q5 $\because A$ of $\Delta ABE = A$ of ΔACD

By deleting A of ΔADE from each other Then

$\therefore A$ of $\Delta EDB = A$ of ΔEDC

$(\overline{ED})$ common Base and the two Traingles are on the same Side

Then $\overline{ED} \parallel \overline{BC}$

B $A =$ Middle Base $* H$

$110 = M.B * 10$

$M.B = 11$ cm

#

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model (9) Geometry

(1) ① $A = (12)^2 = 144$

② ED ③

③ 120°

④ $(12)^2 = 144$ ، $(5)^2 + (8)^2 = 89$

obtuse Triangle

⑤ $m(\hat{C}) > 90^\circ$

⑥ $d_2 = \frac{2A}{d_1} = \frac{2(100)}{10} = 20$ cm

(2) ① 20°

② Twice OR Double

③ $\frac{1}{2}(AB)(CE) = \frac{1}{2} AC * BD$

$\therefore BD = \frac{5 \times 8}{10} = 4$ cm

④ 90° (Complementary)

if Supplementary $= 180^\circ$

⑤ Proportion in length

(3) $\overline{BE}$ is ameduim in ΔBXY

$\therefore$ A of ΔXEB = A of ΔEyB ①

$\because \overline{AC} \parallel \overline{Xy}$ ($XE = \overline{Ey}$) & A, C on the $\overline{AC}$ OR ($A, C \in \overline{AC}$)

$\therefore$ A of ΔEXA = A of ΔEyC ②

By adding ① & ②

$\therefore$ A of ΔABF = A of ΔCBF

(B) Repeated Idea (model 4 [3 B])

$\frac{AB}{AD} = \frac{AC}{AE} \Rightarrow \frac{AB}{8} = \frac{7}{5}$

$AB = 11.2$ cm

$BD = 11.2 - 8 = 3.2$ cm

(4) ① Assume length of the $B_1 = 3X$ & $B_2 = 2X$

$A = \left(\frac{B_1 + B_2}{2}\right) * H$

$180 = \frac{5X}{2} * (12)$

$5X = \frac{180}{6} = 30 \Rightarrow X = 6$ cm

$B_1 = 6(3) = 18$ cm

$B_2 = 6(2) = 12$ cm

(B) $\because$ ABCD, AEFD are Parallelograms

$\overline{AB} \parallel \overline{DC}$ ($\overline{AB}$ common Base)

$\therefore$ A of $\Delta ABM = \frac{1}{2}$ A of $\square ABCD$ ①

$\because \overline{DF} \parallel \overline{AE}$ ($\overline{DF}$ common Base)

$\therefore$ A of $\Delta DFM = \frac{1}{2}$ A of $\square DAEF$ ②

From ① & ②

$\therefore$ A of ΔABM = A of ΔDFM

(5) $\because \Delta ABC$, $m(\hat{B}) = 90^\circ$

$\therefore AC = \sqrt{(7)^2 + (24)^2} = 25$ cm

$(AC)^2 = 625$ ، $(DA)^2 + (DC)^2 = 625$

$\therefore (AC)^2 = (DA)^2 + (DC)^2$

$\therefore \Delta DAC$ is Right-angle-Triangle In $m(\hat{D})$ & $\because \overline{DE} \perp \overline{CA}$

$\therefore$ Projection of $\overline{DC}$ on $\overline{AC}$

$IS = CE = \frac{(CD)^2}{AC} = \frac{(15)^2}{25}$

$= 9$ cm

#

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model (10) Geometry

(1) (1) $d_2 = \frac{2A}{d_1} = \frac{2(48)}{12}$

$= 8$ cm

(2) $(CA)^2 = 121$,

$(AB)^2 + (BC)^2 = 74$

$\therefore m(\hat{B})$ is obtuse

(3)

			Perimeter
4	6	8	18
x	y	z	72

$x = 16$ cm

$y = 24$ cm

$z = 32$ cm

(4) equal in Area

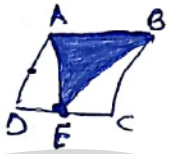
(5) (1) $\overline{DA}$ or $\overline{AD}$

(2) $\overline{CD} \perp \overline{CA}$

(2) (1) $B = \frac{2A}{H} = \frac{2(24)}{8}$

$= 6$ cm

(2) A of $\square = 40$ cm^2



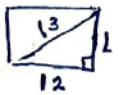
(3) $H = \frac{2A}{(B_1 + B_2)}$

$= \frac{2(42)}{5+7} = 7$ cm

(4) $m(C)$ obtuse

(5) $L = 5$ cm

$A = 5 \times 12 = 60$ cm^2



(3) (A) ABCD is $\square$

$\therefore AB = \overline{CD} = 6$ cm

, $FA = 12 - 8 = 4$ cm

$\overline{AD} \parallel \overline{BC}$, $\overline{EB}$ transversal

$\therefore m(\hat{B}) = m(\hat{EAF})$ Corresponding

$\therefore m(\hat{B}) = m(\hat{D})$ ABCD $\square$

$\therefore m(\hat{EAF}) = m(\hat{D})$ (1)

$\therefore m(\hat{EFA}) = m(\hat{DFC})$ V.O.A

$\therefore \Delta AEF \sim \Delta DCF$

$\frac{AE}{DC} = \frac{AF}{DF} \Rightarrow \frac{AE}{6} = \frac{4}{8}$

$AE = \frac{6 \times 4}{8} = 3$ cm

$EB = 3 + 6 = 9$ cm

$\frac{EF}{CF} = \frac{AE}{DC} \Rightarrow \frac{3}{6} = \frac{EF}{CF}$ (2)

$\therefore m(\hat{EAF}) = m(\hat{B})$

$m(\hat{E})$ common angle

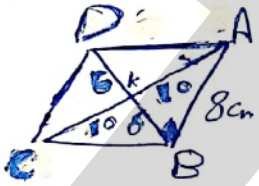
$\therefore \Delta EAF \sim \Delta EBC$

$\therefore \frac{EA}{EB} = \frac{EF}{EC} \Rightarrow \frac{3}{9} = \frac{EF}{7+EF}$

$\therefore 9EF = 21 + 3EF \Rightarrow EF = 3.5$ cm

(B) Repeated idea (model 5) 3B

(4) A) $\therefore \Delta ABK$



$(AK)^2 = 100$

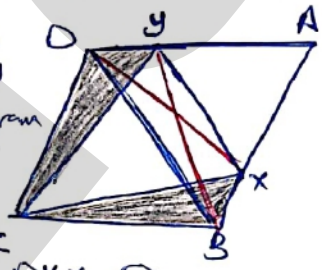
$(AB)^2 + (BK)^2 = 100$

$(AK)^2 = (AB)^2 + (BK)^2$

$\therefore m(\hat{ABD}) = 90°$

A of $\square ABCD = AB \times BD = 8 \times 12 = 96$ cm^2

(B) at first



By connecting $\overline{XD} \parallel \overline{BY}$

$\therefore ABCD$ is Parallelogram

$\overline{DY}$ Common Base

$\overline{DY} \parallel \overline{CB}$

$\therefore A$ of $\Delta DYC = A$ of DYX (1)

$\therefore XB$ Common Base , $\overline{XB} \parallel \overline{CD}$

$\therefore A$ of $\Delta XBC = A$ of ΔXBD (2)

$\therefore A$ of $\Delta XBC = A$ of ΔDYC (3)

From (1) , (2) , (3)

$\therefore A$ of $\Delta DYB = A$ of ΔXBD

$(\overline{DB})$ Common Base $\parallel$ 2 $\Delta\Delta$ on the same side $\therefore \overline{XY} \parallel \overline{DB}$

(5) $\therefore \Delta BCD \Rightarrow m(\hat{C}) = 90°$

$\therefore DB = \sqrt{(7)^2 + (24)^2} = 25$ cm

$\therefore \Delta ABD$, $m(\hat{A}) = 90°$, $\overline{AE} \perp \overline{BD}$

(2) $\therefore$ Projection of $\overline{AB}$ on $\overleftrightarrow{BD} = \overline{EB}$

$EB = \frac{(15)^2}{25} = 9$ cm

(1) $\overline{AD} = \sqrt{(25)^2 - (15)^2} = 20$ cm

(3) Projection of $\overline{AD}$ on $\overleftrightarrow{AE}$ is $\overline{AE}$

$AE = \frac{15 \times 20}{25} = 12$ cm #

eng- Abdelaziz Adel

Date: ……. /…….. /…….

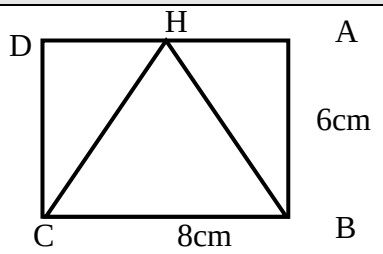
Model (1)

1) Choose the correct answer :

a) In the opposite figure

The area of Δ BHC = cm^2

(48 , 24 , 16 , 12)



b) If triangle its area 80 cm^2 and it height is 16 then its base length is ..... cm

(10 , 5 , 6 , 48)

c) A square its area is 18cm^2, then its diagonal length = …… cm

(36 , 12 , 6 , 48)

d) The area of trapezium, the lengths of its two parallel bases are 8cm, 4cm and its height is 5cm =…… (60cm^2 , 32 cm^2 , 30 cm^2 , 40 cm^2)

e) Δ ABC is an obtuse angled triangle at B, AB = 3 cm , BC = 5 cm then AC = ……

(8 cm , 5cm , 7 cm , 4 cm)

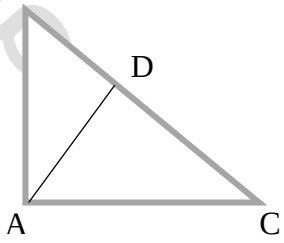
f) The sum of measures of the interior angles of a triangle = ……°

(90 , 120 , 180 , 360)

2) Complete:

a) In the opposite figure . $\overline{AD} \perp \overline{BC}$

the projection of $\overline{AC}$ on $\overleftrightarrow{BC}$ is ……..



b) ……...of the triangle divides its surface into two triangles which are equal in area.

c) A rhombus , the lengths of its two diagonals are 16 cm , 12 cm its area =……..cm^2

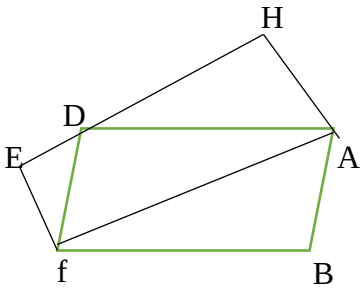
d)The ratio between the area of the triangle and the area of the parallelogram which have common base and lying between two parallel straight lines

=……

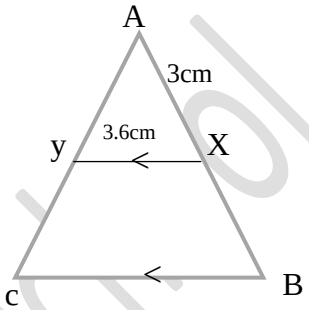
e) The two triangle are similar if their corresponding sides are ……

Date: ……. /……. /…….

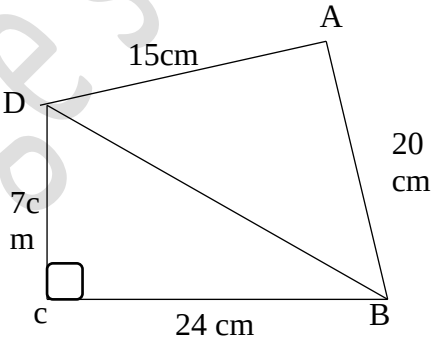
3)**a)**ABFD , AFEH are two parallelograms prove that they are equal in area , If the area of the Δ AFD = 20 cm^2 find the area of the parallelogram AFEH



b) In the opposite figure:
ABC is a triangle in which
AB= 5cm , AC = 4 cm , X ∈$\overline{AB}$
AX = 3cm , $\overline{XY}$ // $\overline{BC}$
XY = 3.6 cm , $\overline{XY}$∩$\overline{AC}$ = {Y} prove that Δ AXY~ΔABC
Find the length of $\overline{BC}$, $\overline{AY}$

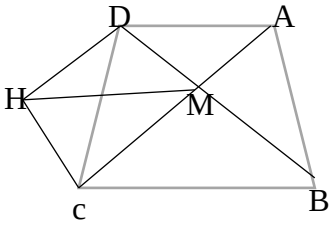


4) A) In the opposite figure
m∠ BCD = 90° , DC = 7cm
BC = 24 cm , AB = 20 cm , AD = 15cm
Prove that m∠ BAD = 90° then find the length of the projection of $\overline{AB}$ on $\overline{BD}$



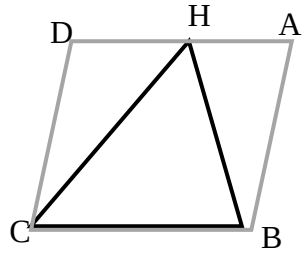
B) determine the type of the angle in Δ ABC in which
AB = 6 cm , BC = 10 cm , AC = 14 cm

5) $\overline{AC}$∩$\overline{BD}$ = {M}
Area Δ AMB = area of Δ DMC
$\overline{DH}$ // $\overline{MC}$ prove that :
First : $\overline{AD}$// $\overline{BC}$.
Second: area of Δ AMB = area of Δ HMC



Model (2)

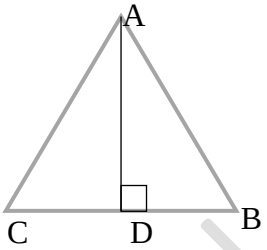
1) Choose the correct answer:



a) In the opposite figure If the area of parallelogram ABCD = 8cm^2
Then the area of Δ BHC = ……cm^2
b) The area of rhombus its diagonal lengths are 6cm , 10cm , is ……cm^2 (60 , 20 , 30 , 32)
c) The triangle whose side lengths are (4 , 5 , 8) cm is ……..
angled triangle. (acute , right , obtuse , otherwise)

Date: ……. /……. /…….

d) If the ratio of enlargement of two similar triangles is ……. Then the two triangles are congruent (1 , 0.5 , 0.25 , 3)



e) If $\overline{AD} \perp \overline{BC}$ then the projection of $\overline{AB}$ on $\overline{BC}$ is
($\overline{BC}$, $\overline{BD}$, $\overline{DC}$, $\overline{AD}$)

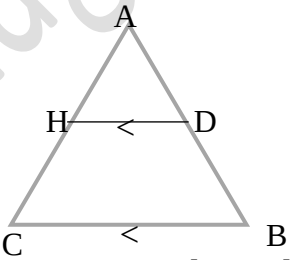
f) The sum of measures of the interior angles of a quadrilateral is …….°
(90 , 180 , 360 , 540)

2) Complete :

a) The two triangles are similar if their corresponding angles are…..

b) A square its diagonal length = 12 cm , then its area is …… cm^2

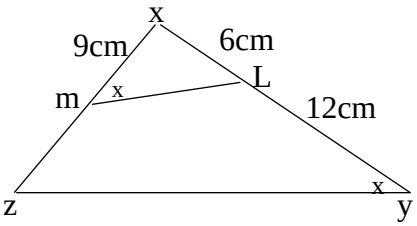
c) The two polygons which are similar to a third one are ……..



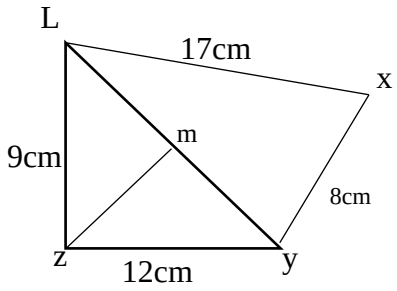
d) In the opposite figure:
$\overline{DH}$ // $\overline{BC}$ then Δ ABC ~ .....

e) The area of the square which drawn on the hypotenuse in the right angled triangle = …….

3) In the opposite figure
m∠ xml = m∠ y , XL = 6cm, Ly = 12cm , XM= 9cm
first : prove that Δ Xyz ~Δ YML
second : find the length of $\overline{MZ}$



4) In the opposite figure :
XY = 8cm , XL = 17cm
ZY = 12cm , LZ = 9cm , m∠ LZY = 90° , $\overline{ZM} \perp \overline{LY}$
prove that m∠ XYL = 90°
then find the projection $\overline{YZ}$ on $\overleftrightarrow{YL}$



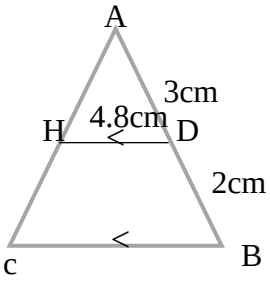
Date: ……. /……. /…….

5) a) In the opposite figure

in Δ ABC which $\overline{DH}$ // $\overline{BC}$

AD = 3cm , BD = 2cm , HD = 4.8 cm

Prove that Δ ADH ~Δ ABC then find the length of $\overline{BC}$



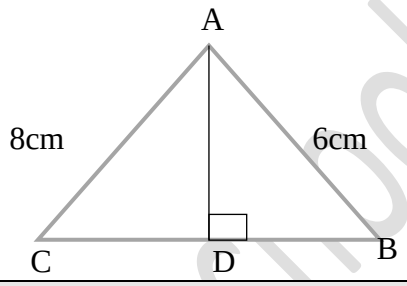
b) In the opposite figure

Δ ABC in which

∠ ABC is a right angle ,

$\overline{AD} \perp \overline{BC}$, AB = 6 cm , AC = 8 cm

Find the length of $\overline{AD}$



Model (3)

1) Complete :

a) The two parallelograms which have a common base and lying between two parallel lines one of them carrying this base are ……

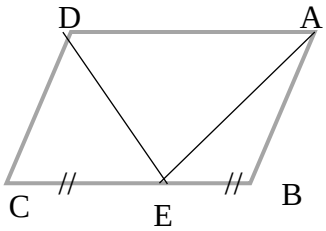
b) The area of the triangle = ……the area of parallelogram which have a common base and included between two parallel straight lines

c) If the area of rhombus = 48 cm^2 , and the length of one of its diagonal = 12cm , then the length of the other diagonal = ……..cm

d) The trapezium in which the lengths of the two parallel bases ara 7 cm , 13cm and its height is 8cm , then its area = ……

e) The two triangles are similar if …….

2) Choose the correct answer :



a) If the area of Δ ABE = 2cm^2

then area of parallelogram ABC …..cm^2

(8 , 4 , 2 , 6)

b) In a rectangle XYZL , the projection of $\overline{XY}$ on $\overline{YZ}$ is

($\overline{XL}$, {Y} , $\overline{LY}$, $\overline{XL}$)

c) The triangle which its base length = 5 cm , its height = 6cm , then its area = ……cm^2 (30 , 15 , 60 , 40)

d) The square which its diagonal length is 10 cm then its area = ……cm^2

(100 , 40 , 50 , 200)

e) The image of the point (-2 , -3) by reflection on the x-axis is ……..

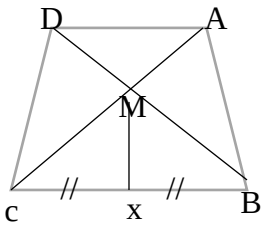
((2 , 3) , (2 , -3) , (-2 , 3) , (-2 , -3))

f) An isosceles triangle of two sides lengths 3 cm , 6 cm , then the length of the third side is ……. cm (3 , 5 , 6 , 9)

3) a) prove that the triangle whose side lengths are 7 cm , 4 cm , 5 cm is obtuse angled triangle

Date: ……. /……. /…….

b) In the opposite figure :



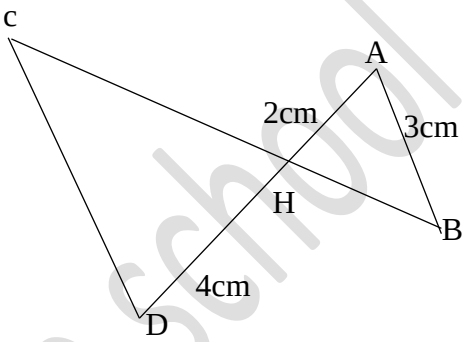
$\overline{AD}$ // $\overline{BC}$, $\overline{AC} \cap \overline{BD}$ = { M }

X is a midpoint of $\overline{BC}$

Prove that :

1) The area Δ AMB = area of Δ DMC
2) The area of figure ABXM =area of figure DMXC

4) In the opposite figure

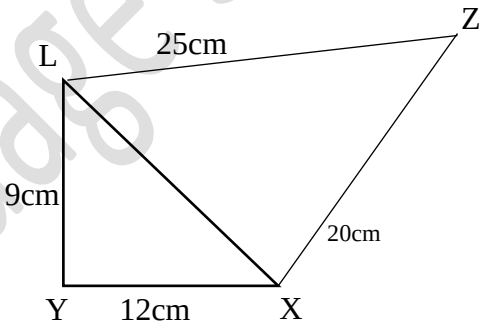


$\overline{AB}$ // $\overline{CD}$, AB = 3cm , AH = 2cm , HD = 4cm

Prove that

Δ ABH ~Δ DCH , then find the length of $\overline{CD}$

5) In the opposite figure



m∠ L y x = 90° ,

ZY = 20 cm , XY = 12cm ,

LY = 9cm , LZ= 25 cm

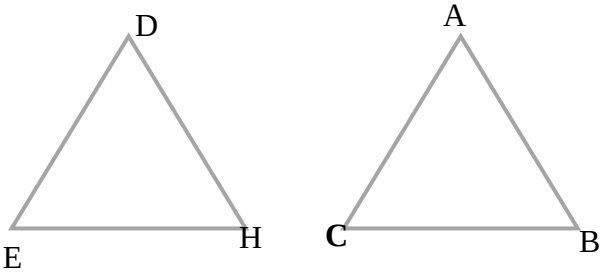
First : 1) prove that : m∠ ZXL = 90°

2) find the length of projection of $\overline{XZ}$ on $\overline{LZ}$

Model (4)

1) Complete

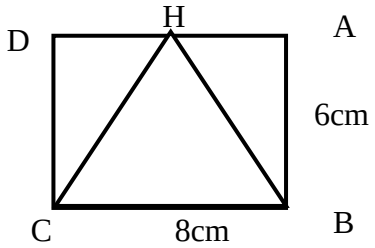
1) A rhombus its diagonals lengths are 11 cm , 6cm then its area = …….cm^2
2) The two triangle are similar if their corresponding angles are ……
3) The trapezium in which the lengths of its two parallel bases are 7cm , 3 cm and its height is 8 cm . its area = …….cm^2
4) The area of the square which is drawn on the hypotenuse of the right angled triangle = ……..
5) If Δ ABC ≡Δ DHE , m∠ ABC = (3x -15)°
   m∠ DHE = (2x+10)° then the value of x = ……..



Date: ……. /……. /…….

2) Choose the correct answer between brackets:

a) In the opposite figure : the area of Δ BHC =
(48 , 24 , 16 , 12)



b) A square its diagonal length is 10 cm , then its ,
area = ……..cm^2 (100 , 40 , 50 , 60)

c) A triangle its base length is 8cm , its
height is 5 cm then its area = …… cm^2 (100 , 20 , 40 , 13)

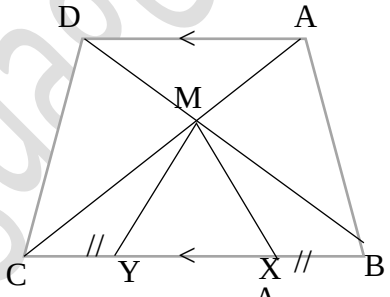
d) If $(AB)^2 > (AC)^2 + (BC)^2$ then ∠ B is ……..
(obtuse , right , acute , straight)

e) The number of diagonals of the pentagon is (2 , 3 , 4 , 5)

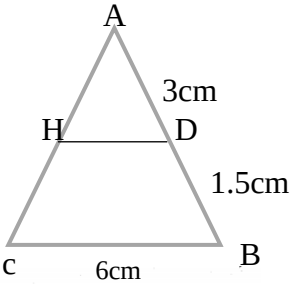
f) A rectangle its two dimensions are 6 cm , 8 cm , then its diagonal length
= …… cm (48 , 2 , 14 , 10)

3) a) Determine the type angle B in triangle ABC in which AB = 4cm , BC = 5 cm , AC = 7 cm

b) In the opposite figure
$\overline{AD}$ // $\overline{BC}$. $\overline{AC} \cap \overline{BD}$ = {m}
X, Y ∈ $\overline{BC}$ such that BX = CY
Prove that the area of shape ABXM=
Area of shape DCYM



4) a) Δ ABC ~Δ ADH
DB = 1.5 cm BC = 6cm
Prove that $\overline{DH}$ // $\overline{BC}$ then find the length of $\overline{DH}$

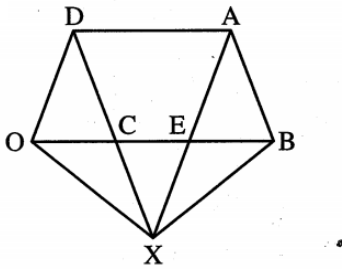


b) In the opposite figure

In the opposite figure :

ABCD , AEOD area two parallelograms
, $\overrightarrow{AE} \cap \overrightarrow{DC} = \{X\}$

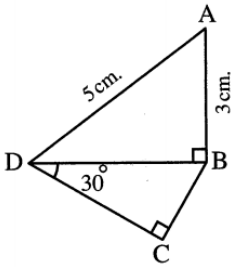
Prove that : The are of Δ ABX = The area of Δ DOX



5) In the opposite figure :

ABCD is a quadrilateral in which m (∠ ABD) = 90°
, m (∠ BCD) = 90° , m (∠ BDC) = 30° ,
AB = 3 cm. and AD = 5 cm.

Find : CB



Date: ……. /……. /…….

Model (5)

1) choose the correct answer :

a) If the ratio of similarity of two similar triangles is ……then the two triangles are congruent . (1 , 0.5 , 0.25 , 2)

b) A triangle its area is 40 cm^2 , its height is 8 cm then its base length = ….cm
(10 , 5 , 12 , 18)

c) A rhombus its diagonal lengths are 12 cm , 8 cm then its area is ……cm^2
(96 , 20 , 4 , 48)

d) The area of trapezium in which the lengths of its two parallel bases are 4 cm , 8 cm and its height is 5cm equals …….
(60cm^2, 32cm^2, 30cm^2, 40cm^2)

e) ABC in which AB = 7 cm , BC , 5 cm , AC = 3cm then the type of angle c is ……. (obtuse , right , acute , straight)

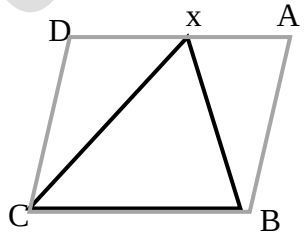
f) An isosceles triangle of base angles 2x+ 10 and x+40 of degrees then x = ……..° (20 , 30 , 40 , 50)

2) complete :

a) The two triangle are similar if ……

b) …….. of the triangle divides its surface into two triangles which are equal in area

c) It the area of Δ XBC = 8 cm^2 then the area of the parallelogram ABCD = …….



d) The length of the side of the square which its area equals the area of a rectangle of dimensions 9 cm , 16 cm =……..cm

e) The area of the square drawn on the hypotenuse of the right angled triangle equals

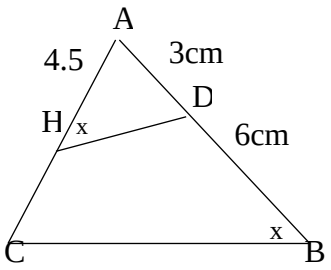
3) a) In the opposite figure

If m∠ AHD = m∠B

AD = 3cm , AH = 4.5 cm BD = 6 cm ,

First : Prove that : Δ ABC ~Δ AHD

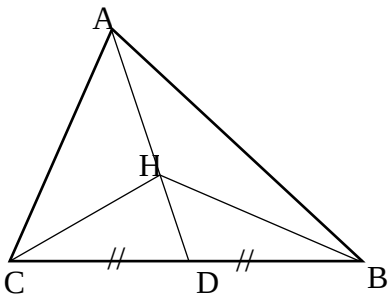
Second : the length of $\overline{HC}$



b) In the opposite figure

$\overline{AD}$ is a median in Δ ABC H∈$\overline{AD}$

Prove that a. of Δ ABH = a. of Δ ACH



Date: ……. /……. /…….

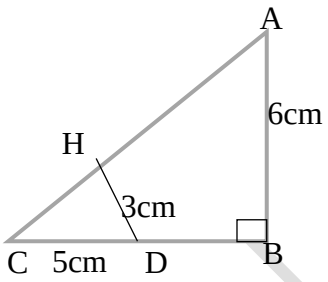
4) a) in the opposite figure

ABC is a right angled triangle at B

$\overline{DH} \perp \overline{AC}$, AB = 6cm HD = 3cm

CD = 5cm

Prove that Δ ABC ~Δ DHC then find the length of $\overline{AC}$



b) In the opposite figure :

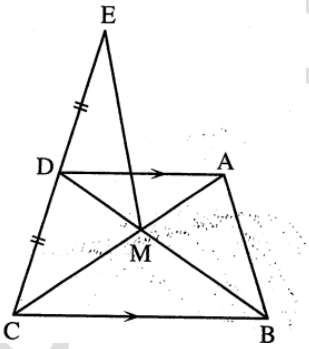
$\overline{AD} // \overline{BC}$,

$\overline{AC} \cap \overline{BD} = \{M\}$,

D is the midpoint of $\overline{EC}$

Prove that :

The area of Δ MDE = the area of Δ AMB



5) In the opposite figure

In the opposite figure :

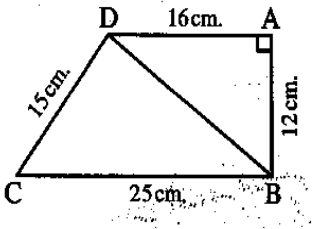
m (∠ A) = 90° , AB = 12 cm. , BC = 25 cm. ,

, CD = 15 cm. , and AD = 16 cm.

(1) **Find the length of :** $\overline{BD}$

(2) **Prove that :** m (∠ BDC) = 90°

(3) **Find the area of the figure :** ABCD



(4) Find the length of projection of $\overline{AB}$ on $\overline{BD}$

Good Luck☺

Date: ……. /……. /…….

Model (1) (answer)

1)

a) $24cm^2$	b) 20 cm	c) 6cm
d) $30\ cm^2$	e) 7cm	

2)

a) $\overline{DC}$	b) Median	c) $72\ cm^2$
d) 1 :2	e) similar	

3) a) ∵Δ AFD, parallelogram ABCD have a common base ($\overline{AD}$) and lying between 2 parallel lines.

∴ area of Δ AFD = $\frac{1}{2}$ area of parallelogram ABCD ⇒(1)

∵ AFD,parallelogram AFED have a common base ($\overline{AF}$)and lying between 2 parallel lines.

∴ area of Δ AFD = $\frac{1}{2}$ area of parallelogram AFEH ⇒ (2)

From (1) , (2) ∴ area of parallelogram ABCD = area of parallelogram AFEH

∵ area of triangle AFD = 20 cm^2

∴ area of parallelogram AFEH = 40 cm^2

b) In ΔΔ AXY ABC

∠ A is common angle (1)

∵$\overline{Ay}$ // $\overline{AC}$

∴ m∠ AXY = m∠ B (2) corresponding angle

m∠ A y x = m ∠ C (3) corresponding angle

From (1) , (2) , (3)

∴Δ AXY ~Δ ABC

$\therefore \frac{AX}{AB} = \frac{XY}{BC} = \frac{AY}{AC}$

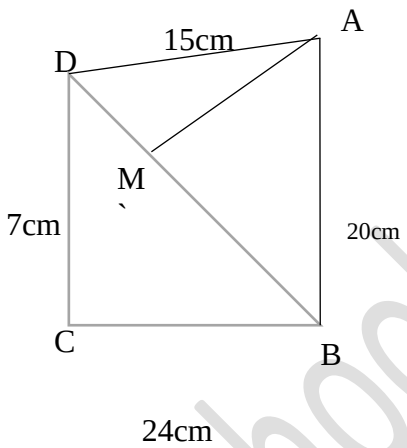
$\therefore \frac{3}{5} = \frac{3.6}{BC} = \frac{Ay}{4}$

∴ AY = $\frac{3\times4}{5}$ = 2.4 cm

∴ BC = $\frac{3.6\times5}{3}$ = 6 cm

Date: ……. /……. /…….

4) a)



∵ BCD is a right-angle triangle at C

∴ BD = $\sqrt{7^2 + 24^2}$ = 25 cm

∵ $AB^2 = 20^2 = 400 cm^2$

$AD^2 = 15^2 = 225 cm^2$

$BD^2 = 25^2 = 625 cm^2$

∵ 625 = 400 + 225

∴ $BD^2 = AB^2 + AD^2$

∴Δ ABD is right angle triangle at A

∴ m∠ BAD = 90°

Draw $\overline{AM} \perp \overline{BD}$

∴ the projection of $\overline{AB}$ on $\overline{BD}$ is $\overline{BM}$

∴ $AB^2 = BM \times BD$

$(20)^2 = BM \times 25$ ∴ MB = $\frac{20^2}{25}$ = 16 cm

∵ $AC^2 = 14^2 = 196 cm^2$

$AB^2 = 6^2 = 36 cm^2$

$BC^2 = 10^2 = 100 cm^2$

$AC^2 > AB^2 + BC^2$ ∴ ∠B is obtuse angle

5) ∵ area of Δ AMB = area of Δ DMC (1)

BY adding area of Δ BMC for bot1h sides

∴ area of Δ ABC = area of Δ DBC which have common base $\overline{BC}$

∴$\overline{AD}$ // $\overline{BC}$

∵ΔDMC , ΔHMC have common base

$\overline{CM}$, $\overline{DH}$, // $\overline{CM}$

∴ area of Δ DMC = area of Δ HMC (2)

From (1) , (2)

∴ area of Δ AMB = area of ΔHMC